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CORONARY DISEASE IN DIABETES MELLITUS*

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INTRODUCTION

Of seventy-seven fatal cases of diabetes mellitus necropsied at the Peter Bent Brigham Hospital, thirty-five, or 45 per cent., showed well marked disease of the coronary vessels and eight, or 10 per cent., died of cardiac infarction. The ages of these patients ranged from thirteen to eighty-five years. Since coronary sclerosis and its complications appeared to be so striking a postmortem finding in this series, it has seemed of interest to attempt to correlate the clinical and pathological changes encountered with a view to determining any possible relationship between the modern treatment of diabetes and the production of angina pectoris and coronary thrombosis.

HISTORICAL NOTE

Diabetes and angina pectoris have been recognized as clinical entities for many years, yet not until 1864 did Seegen[1] comment on the occurrence of the two maladies in one patient. Nineteen years later, in 1883, Vergely[2] emphasized the frequent association of these two diseases. He was so impressed with their coincidence that he published a paper emphasizing the importance of examining with caution the urine of all patients with angina pectoris to make sure that diabetes was not also present. These early observations on angina pectoris in relation to diabetes were soon confirmed in France by Dreyfous[3] and Huchard[4], in Germany by Mayer[5], and in England by Ord[6]. Thereafter a large literature on this aspect of diabetes grew rapidly. Among others, for example, Naunyn[7] and Brunton[8], before the days of insulin, wrote at length on coronary disease in diabetes. More recently Warren and Root[9] of Joslin's clinic reported coronary sclerosis as a striking pathological finding in eleven (65%) of seventeen of their fatal cases over forty years of age, Wilder[10] in seventeen (34%) of forty-nine fatal cases of all ages, at the Mayo Clinic, and Strauss[11] observed extensive cerebral or coronary sclerosis in 38 per cent. of fifty-four fatal cases in his clinic in Berlin. As has been mentioned, coronary sclerosis was a notable pathological finding in nearly half of our own cases.

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The possible relationship between the use of insulin and the production of cardiac infarction has received comment. Hetényi[12] reported two cases of diabetes associated with angina pectoris in which the anginoid attacks appeared to be influenced by insulin. One of these patients developed severe precordial pain after insulin alone and this did not develop when glucose and insulin were given together. The other developed an attack of angina a few hours after an insulin injection and this was relieved immediately by an intravenous injection of glucose. Joslin[13] has three cases which perhaps developed cardiac infarcts after receiving injections of insulin. Such occurrences can be explained theoretically in any one of several ways. Edwards, Page and Brown[14] showed that insulin hypoglycemia produces a decreased dynamic function of the heart. Visscher and Müller[15], and Brems and Holten[16] found an increase in blood pressure after insulin injections, Büdingen[17] brought forward evidence to show that the diabetic heart, in order to function properly, requires a higher blood sugar concentration than normal. Each of these facts might account for the occurrence of a cardiac accident after an insulin injection.

On the whole, therefore, it is now well known that diabetes and sclerosis of the coronary vessels often are associated. It has been suggested that cardiac infarction may appear so quickly after an injection of insulin as to indicate some closer relationship between these two events than chance alone.

A STATISTICAL ANALYSIS OF THE PETER BENT BRIGHAM HOSPITAL CASES

In the seventy-seven cases on which this study is based, there were thirty-five with abnormal coronary vessels. Each one of these thirty-five individuals lived to be more than thirty-four years old; the group comprised twenty-two women and twelve men. Whether the predominance of women over men in so small a series is worthy of comment is a question, though in passing it may be mentioned that in the usual statistics of the occurrence of angina pectoris, the disease is said to appear much more frequently in men than in women.

Coronary sclerosis was found as a definite pathological lesion in twenty-one per cent. of four hundred and fifty non-diabetic patients between the ages of forty and eighty years who were studied in the department of pathology of

this hospital. Our finding of forty-five per cent. with coronary disease in similar age groups in the diabetic cases is, of course, sufficiently striking.

The ages of our patients at the time of death varied from thirty-four to seventy-eight years, half the cases being over sixty. Coronary sclerosis, therefore, is usually a complication in store for the elderly diabetic. This is not always true, however, as Anderson[18] has reported the case of a man who suffered from diabetes for fourteen years and died at the age of thirty-three from coronary disease with marked arteriosclerosis, and two of our cases occurred in individuals less than forty years old.

TABLE 1

AGE OF DIABETIC CASES SHOWING CORONARY SCLEROSIS AT DEATH IN 35 CASES

Number of cases	Per cent. of cases	Age of diabetics showing coronary disease at necropsy
2	6	34-36
5	14	41-50
10	29	52-60
13	37	61-69
5	14	71-78

Seven of our patients did not know they had diabetes until they were admitted to the hospital and seven others were known diabetics of less than a year's duration. On the other hand, there were four long-standing cases with known diabetes for more than twelve years.

TABLE 2

THE KNOWN DURATION OF DIABETES IN THE CASES WITH CORONARY SCLEROSIS AT NECROPSY

Number of cases	Known duration of diabetes
7	1 year or less
10	2-5 years
7	7-12 years
4	12-15 years
7	No previous knowledge

It is interesting to speculate on the significance of such data. Diabetes may be considered as a manifestation of a generalized arterial disease and in some fashion secondary to it, or possibly the type of diet on which a patient with diabetes is forced to live may have to do with the production of vascular lesions. At present, which of these two surmises is the more reasonable is not known. We are urgently in need of accurate knowledge in regard to the cause of the vascular changes so frequently encountered in diabetes.

There have been divergent opinions expressed in regard to the significance of body weight in relation to the coronary disease of diabetes. Wilder's cases did not suggest that the factor of obesity played a significant part in causing either arteriosclerosis or diabetes, while the cases of Warren and Root occurred in individuals most of whom, at one time or another, had been too stout. While our patients ranged in weight from 91 to 220 pounds when they entered the hospital, most of them had been distinctly too fat for their height at one time in their lives, as shown in table 3.

Seventeen, or 49 per cent., of the thirty-five patients were in the obese group when the diabetes was first recognized. Of these seventeen, eleven lost weight to normal or subnormal values during their diabetes. This loss of weight took place during a period of five years in two patients, of seven to eight years in six patients, of twelve to fourteen years in two patients, and of twenty years in one patient. This suggests that reducing weight has had very little influence on the development of coronary sclerosis, or even may have been a disadvantage.

To observe further the possible relationship between obesity and arteriosclerosis, control cases were selected in which the weights were studied in two groups of non-diabetic necropsied cases, the relative frequency of the ages being the same as in the diabetic cases.

The first group consisted of thirty-five con-

TABLE 3

GREATEST WEIGHT OF DIABETIC CASES SHOWING CORONARY SCLEROSIS AT DEATH

Cases	Best Weight	Weight on Entry	Duration of Loss	Cases	Best Weight	Weight on Entry	Duration of Loss
1	115	115	——	19	254	162	7 years
2	158	150	recent	20	180	180	——
3	187	155	8 years	21	184	140	7 years
4	160	105	1 year	22	214	167	12 years
5	220	220	——	23	160	155	30 years
6	156	156	——	24	162	130	7 years
7	220	190	5 years	25	196	196	——
8	155	91	5 years	26	130	104	10 years
9	230	150	20 years	27	slightly obese		——
10	145	130	3 years	28	160	130	2 years
11	170	135	20 years	29	135	103	1 year
12	165	140	2 years	30	208	260	5 years
13	210	168	7 years	31	190	125	14 years
14	162	162	——	32	210	125	8 years
15	140	100	9 years	33	210	198	recent
16	185	165	6 months	34	obese	obese	——
17	200	150	5 years	35	180	112	8 years
18	168	145	1 year				

secutive non-diabetic cases that showed no evidence of arteriosclerosis at necropsy. Only five or 14 per cent. of these thirty-five patients had ever been obese.

The second group consisted of seventy consecutive non-diabetic cases all of which showed arteriosclerosis at necropsy. A striking feature in this series was that forty-four, or 63 per cent., of this group had been obese. The greatest weight of forty of these patients varied from 180 to 280 pounds, while that of four short obese patients ranged from 165 to 172 pounds.

Here again, the relationship between obesity, vascular disease and diabetes is speculative. Obese people are likely to develop both diabetes and vascular disease. Yet what influence the combination of diabetes and obesity has in producing a complicating coronary sclerosis is unknown.

SYMPTOMS OF CORONARY DISEASE

Ten of our patients had no symptoms referable to the heart before coming to the hospital. Twenty-five had more or less definite cardiac symptoms, lasting from several months to ten years before they came under observation. The symptoms included dyspnoea with palpitation or with edema of the ankles in sixteen cases, epigastric distress, possibly of an anginoid nature in two cases, and definite attacks of precordial pain in seven cases.

Notwithstanding the presence or absence of antecedent cardiac symptoms, the majority of our patients entered the hospital because of varying difficulties, which did not appear to be directly related to the coronary vessels. It is interesting to note that four patients with a painless acidosis died of coronary thrombosis.

TABLE 4

CHIEF COMPLAINT OF DIABETIC CASES SHOWING CORONARY SCLEROSIS AT NECROPSY

Number of cases	Chief complaint
7	Gangrene of an extremity
7	Pain in chest and precordium
6	Gastric distress or epigastric pain (no apparent cause)
10	Weakness, loss of appetite, nausea, dizziness, the grippe, dyspnoea, cough or abscess
2	Diabetes and pain in the leg
2	Gall-stone colic
1	Frequency of micturition

CAUSE OF DEATH

The chief cause of death in 46 per cent. of the cases was directly attributable to infection. Heart lesions were the next most frequent cause, occurring in 43% of the cases. The relative frequency of the chief causes of death are shown in table 5.

BLOOD PRESSURE LEVELS IN THE CORONARY DISEASE OF DIABETES

The blood pressure readings of the group were tabulated with the idea of determining any relationship between coronary sclerosis and hypertension. There were fifteen, or 43 per cent., of the thirty-five patients who had definite hypertension with systolic blood pressures of 180 to 286 and diastolic blood pressures of 80 to 140.

TABLE 5

CHIEF CAUSE OF DEATH OF DIABETIC CASES SHOWING CORONARY SCLEROSIS AT NECROPSY

Number of cases	Chief cause of death
8	Infarct of heart
3	Chronic myocarditis
4	Coronary sclerosis
7	Infection complicating surgical treatment
3	Acidosis
4	Broncho and lobar pneumonia
1	Cerebral hemorrhage
1	Tuberculosis
1	Septic infarction of lung
3	Septicemia

The remaining patients had systolic blood pressures of 96 to 160, and diastolic pressures of 60 to 90. The incidence of hypertension during the course of the diabetes may have been greater because there were five cases of cardiac infarction, with normal or subnormal blood pressures, possibly blood pressure levels brought about by the infarction, and others that had no previous knowledge of their blood pressures. Here again, it seems that the coincidence of coronary sclerosis and hypertension in nearly one-half of the cases is simply further evidence of general vascular disease in diabetes.

CARDIAC INFARCTION AND DIABETES

A striking feature in our cases was that coronary thrombosis occurred in eight (10 per cent. of the group), or in 23 per cent., of the thirty-five with coronary disease. Two of the cases were associated with rupture of the heart. Levine[19] observed that among his hundred and forty-five cases of coronary thrombosis, there were thirty-four, or 24 per cent., with glycosuria, or known diabetes. Nathanson[20] also found a history of diabetes in 25 per cent. of a group of twenty-four cases of coronary thrombosis. Thus the occurrence of diabetes and coronary thrombosis together is well recognized, though the vascular accident is usually discussed in connection with heart disease instead of a complication of diabetes.

THE CAUSE OF CARDIAC INFARCTION IN DIABETES

Apparently, the fundamental lesion in coronary thrombosis is in no way a process peculiar to diabetes but one dependent upon vascular disease. The coronary arteries show arteriosclerosis with a diminution in the lumen of the vessels

and occlusion of a part of one of the artery's course by secondary thrombosis. There seems to be a striking similarity between this process and that of diabetic gangrene.

It is interesting to speculate on the precipitating cause of the thrombosis in diabetics. In our cases, acidosis and insulin therapy were two outstanding factors which may have been important. To substantiate acidosis as a possible etiologic factor, there were, before the days of insulin, four cases of cardiac infarction and severe diabetic acidosis. Since the introduction of insulin there have been four additional cases in three of which the lesion appeared to develop shortly after the administration of insulin. Of these, two patients had no previous cardiac symptoms, while the third had preëxistent dyspnoea and hypertension without, however, symptoms of angina.

Certainly, the occurrence of such accidents, and the observations of Hetényi, Joslin and Büdingen suggest that insulin may have a deleterious effect on the diabetic heart with coronary disease, especially if it produces sudden hypoglycemia.

It is reasonable to believe, therefore, that in the elderly diabetic patient who is a candidate for coronary sclerosis and whose heart may require an increased blood sugar concentration with which to function properly, sudden changes in the blood sugar level may be dangerous. Such patients should be treated with insulin conservatively and be protected with ample sugar.

SPECIAL CASES

Three cases of coronary thrombosis are described in which the use of insulin may have been a factor in the production of the infarctions. Also, they are reported in detail to emphasize how readily cardiac infarction may be confused with diabetic coma.

CASE 1. A woman, aged sixty-one years, was admitted to the hospital in coma with a history of diabetes for two years. Three days before entry she felt so weak that she went to bed. On the day before admission she became unconscious. The blood pressure was 115/70. Otherwise the examination was unimportant. The blood sugar was .51%. The blood CO_2 was 17 volumes per cent. The urine contained 1.5 per cent. sugar and diacetic acid ++. The patient was given five doses of 25 units of insulin at hourly intervals. She died suddenly without warning. Autopsy revealed the right coronary artery to be occluded by a thrombus of recent origin. The left ventricle of the heart was ruptured.

CASE 2. A woman, aged seventy-six years, was admitted to the hospital in a state of coma. She was known to have had diabetes for two months and hypertension with slight dyspnoea on exertion for two years. She had no particular difficulty until the day before admission, when she became nauseated and comatose. The blood pressure was 160/70. Otherwise the examination was negative. The blood sugar was .88%. The urine contained 2.2 per cent. sugar. She was given 80 units of insulin immediately. The systolic blood pressure dropped to 60. She died within a few hours of entry. Autopsy revealed an early cardiac infarct.

CASE 3. A woman, aged sixty-five years, entered the hospital with the complaint of weakness and nausea. She had been treated for diabetes for two years and required only small doses of insulin. It was known that her blood pressure had been as high as 228/98. She took insulin regularly until two weeks before the final admission, when she omitted it because of an attack of the grippe. Two days before entry she began to vomit. The blood pressure was 140/82. There was some edema of the legs. The examination was unimportant otherwise. The urine contained 2.8 per cent. sugar with diacetic acid ++ and a large trace of albumen. The blood CO_2 was 27 volumes per cent. The blood sugar was .53%. On the second day of admission the patient was given 20 units of insulin which was repeated five times at frequent intervals. The blood sugar dropped to .06% rapidly and the patient died a few hours after the last injection. Autopsy showed an infarct of the heart with an acute pericarditis.

DISCUSSION

There is very definite evidence to prove that patients with diabetes are prone to develop vascular disease. In this connection, it is to be remembered that the coronary vessels are likely to be implicated. Diabetic patients with coronary disease may have a well-marked pathological process involving the heart muscle and yet have no cardiac symptom of any sort. On the other hand, they may have long-standing hypertension, and symptoms of congestive failure or of angina pectoris.

Our present state of knowledge is very nebulous in regard to the cause of the frequent occurrence of vascular disease in diabetes. It has been possible to devise fairly rational methods for improving the function of the sclerosed peripheral vessels of diabetic patients when they are obviously diseased, and thus to prevent to a degree the incidence of gangrene. Methods similar in effect to those used for peripheral vessels are available for the coronaries in the use of drugs known to increase the coronary flow. Unfortunately, it is impossible to detect in any rational way changes in the smaller and intangible cardiac vessels, which may be extensively diseased without producing any demonstrable signs or symptoms. The fact that 45 per cent. of our fatal cases showed well-marked coronary sclerosis at necropsy, and that 43 per cent. of these patients died of heart disease is striking. It is reasonable to conclude from this experience that more emphasis should be laid in the future on the cardiovascular aspects of diabetes than has been laid on this aspect of the disease in the recent past.

In managing diabetic patients, therefore, due importance must be attached to the condition of the circulatory system in order to obtain the best therapeutic results. Regulation of body weight may be a means of forestalling the development of diabetes and vascular disease, though rapid reduction of weight after obesity has developed may have very little influence on the progression of a diabetic's vascular disease, or may even be a disadvantage. Certainly the prop-

er use of rest, exercise, fluid intake, digitalis, nitrites, theobromine and theophyllin and their derivatives may be as vital as the proper balancing of diet or insulin. And finally, the question of the prevention of cardiac thrombosis arises.

In our experience two factors possibly played a contributory part in inducing eight fatalities from coronary thrombosis. Acidosis was a common factor in almost all, and a rapid lowering of the blood sugar level with insulin was a common factor in four. In order for the diabetic patient with extensive coronary sclerosis to live long and comfortably, it appears desirable to protect him from developing acidosis. In these days, this is usually a comparatively simple matter when diet and insulin are used intelligently. It also appears desirable to call attention to the fact that a rapid lowering of the blood sugar with insulin may be dangerous. The older diabetic with obvious peripheral sclerosis is likely to have badly diseased coronary vessels. In the management of such cases, hyperglycemia should be handled very conservatively and the blood sugar concentration brought to normal slowly rather than rapidly lest the injudicious use of insulin be soon followed by a fatal angina pectoris. It may not be wise to treat mild diabetes in an elderly arteriosclerotic at all. This view has been held by older clinicians in previous days.

SUMMARY

This paper presents a clinical study of thirty-five fatal cases of diabetes with coronary artery disease. Coronary sclerosis is a frequent complication of diabetes. It has occurred in 45 per cent. of all diabetic cases necropsied in the Peter Bent Brigham Hospital.

The incidence of coronary disease is greater in diabetics than in non-diabetics, as shown by the fact that it occurred in 45 per cent. of our diabetic necropsies and in 21 per cent. of a non-diabetic group above the age of forty years.

Ten of the diabetic patients had no symptoms referable to the heart before they entered the hospital for the last time. Twenty-five had more or less significant cardiac symptoms, lasting from several months to ten years before they came under observation, but most of them entered the hospital for varying complaints which were not related to the heart. Yet the chief cause of death in 43 per cent. of all the series was directly attributable to heart disease.

Cardiac infarction caused death in 10 per cent. of seventy-seven fatal diabetic cases and in 23 per cent. of thirty-five fatal diabetic cases with pathological evidence of coronary sclerosis. Cardiac infarction is a not uncommon complication of diabetes and may be masked by the clinical picture of diabetic coma. Death from cardiac infarction occurred in three cases shortly after a rapid fall in blood sugar concentration following the administration of insulin.

Due importance must be attached to the condition of the circulatory system in order to obtain the best therapeutic result in diabetes.

A sudden lowering of the blood sugar concentration by insulin may be dangerous for the elderly diabetic patient with vascular disease; such a patient is likely to have sclerosis of the coronary vessels as part of generalized arteriosclerosis. The sudden lowering of the blood sugar level by insulin may induce coronary thrombosis and a fatal outcome.

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THE FUTURE OF MEDICAL PRACTICE*

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Ladies and Gentlemen:

THOSE of you who followed the proceedings of the meeting of the Canadian Medical Association held recently in Winnipeg, Canada, must have been concerned by the statement attributed to a learned English physician who took as his subject, "The Pursuit of Health." In his address, Dr. Robert Hutchison, the speaker referred to, made certain statements which give us food for thought. He claimed that the old ignorance about the body and stolid resignation to its ills was probably a more healthy attitude and certainly a happier one than our

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modern curiosity and over-anxiety. In the opinion of Dr. Hutchison the modern pursuit of health has developed three types of hypochondriasis—individual, vicarious, and national. Many of us have developed a fear complex regarding our health. Parents have developed a vicarious hypochondriasis through over-anxiety regarding their children. The rearing of an infant, Dr. Hutchison claims is now regarded as a job requiring the combined knowledge of a chemist, a psychologist, and a public health officer. He claims that nervous troubles of one sort or another are more common today in childhood than they ever were, due to the atmosphere of fuss and anxiety in which so many children are brought up. With respect to national hypochondriasis, Dr. Hutchison criticised adversely the health societies, health weeks, popular lectures and articles, booklets, leaflets, and slogans which are used in the modern campaign for health. It was Dr. Hutchison's final verdict that one need not specially concern himself about his health until he feels something wrong with the working of the human machine and then he should see the family doctor.

In a somewhat similar strain is the statement of the President of the American Medical Association, Dr. Gerry Morgan, made at the recent annual meeting of the Association in Detroit. Dr. Morgan in commenting upon the growth of paternalistic tendencies states that "Aside from efforts directed toward the conservation of the public health by agencies of government, there has grown apace another form of paternalism applied not to public health but to the health of the public. The list is long and steadily growing longer of agencies medical, quasi-medical, and plainly non-medical, which have for their object some form of medical oversight, 'guidance', 'education', 'social service', 'psychiatric social service', 'case work', and what not, all directed toward the physical, mental, moral, or emotional life of parents or their children, and all under the guise of physical or mental betterment."

Commenting upon this, Dr. Morgan says: "After looking through the list of these agencies, one is constrained to ask what has come over the people that makes such oversight necessary or possible. We are told that mothers have been 'educated' in the care of their children, until they are stampeded by the multiplicity of directions and in increasing numbers are turning the job over to the clinic or 'center' or whatever agency may be available for shifting responsibility while they read the latest thriller or go to the movies."

Such a statement as this coming from the President of the recognized medical society of the United States must give us pause. To us assembled here today representing not only the medical profession but the laity, to us who have for years believed in the fundamentals of social service, the statements which I have given above are a challenge. It remains for us to determine whether they are right and if so, whether the time has come for us to scrap the machinery that has been evolved within the last decade or two for the education and training of the public in preventive medicine, or whether it is possible for us to show that the type of public health movement represented by the Health Center has its place in the community and that its existence and its future growth can be justified by the results.

If we assume that the premises laid down by these eminent physicians are correct, if we assume that what we have done is to develop primarily an individual and community fear complex in the people of the United States, if it is true that health education is creating a stampede,—there necessarily follows the assumption that we no longer have the right to instruct the prospective mother regarding her approaching maternity, that we no longer have the right to advise parents of the danger which their children run from communicable and infectious diseases, that we may no longer attempt to prevent the horrors of diphtheria by recommending inoculation, or the ravages of smallpox by advising vaccination. We may no longer recommend periodic health examination, on the supposition that if Dr. Hutchison is correct, this is futile and it is better and saner to await the occurrence of conditions which necessitate the presence of the family doctor. And yet it has definitely been proven by statistics that the periodic medical examination has influenced the prolongation of life. If we assume that these learned men are right, it follows that the discoveries which have been made in the field of preventive medicine in the past decade may not be interpreted by the layman but must be left to the discretion of the physician. It means that the campaigns of education in popularizing health knowledge, the campaigns of education to reduce infant mortality, the campaigns of education to prevent diseases of childhood are impracticable and useless. It means that all the accessory conditions which make their impress on human vitality, such as adequate housing, proper food, proper environment.—all these things specifically which have been the field of activity of the social worker, shall go into the discard. "Forget them. Do not think of your health. When you are ill, call the doctor."

You will appreciate my embarrassment in venturing to call attention to these matters. And yet they must be spoken of, if for no other reason than that the type of service we are dedicating today demands a refutation. Why build health centers, why continue this splendid piece of work instituted by your Health Department under the auspices of the White Foundation with the sympathetic support of your Mayor? We have no assurance that the work of these centers in the field of education through prenatal

service, through infant and preschool clinics, through clinics for prophylactic dentistry, through instruction in mental hygiene and nutrition, through educational campaigns to have children immunized against diphtheria, smallpox, and typhoid fever, and through the dissemination of health education by literature, motion pictures, tuberculosis clinics, tuberculosis preventoria, etc., have borne fruit. Can it be true that all of this health work, supplemented by the coöperation of lay welfare organizations with headquarters in these buildings, can have been entirely unproductive, or putting it the other way, has been actually harmful?

I venture to express the opposite opinion. I venture to differ from our learned members of the medical profession. There has always been a fear complex, a fear due to ignorance. Our earliest ancestors shuddered in their trees or cowered in their caves because they could not understand and hence dreaded the lightning and the storm. They created their imaginary gods who ruled them in health and demons who possessed them when they were ill. Their lives were lives of sacrifice and propitiation to the supposed spirits of evil and destruction which encompassed them. Life was a dreadful mystery, a mystery heightened by the abysmal incomprehension and ignorance of those who lived it.

It has taken countless ages to lessen this fear and dread and the end is not yet. Many of the old superstitions regarding disease still maintain. The veil of secrecy has not been entirely torn away. It will continue to becloud and to dim the vista of the human animal until we learn that knowledge is not for the elect few but for all—until we learn that discoveries in the field of medicine and other sciences must not be confined to musty tomes or to the pages of learned magazines. It must be interpreted intelligently and sympathetically and understandingly for the layman and the tyro. When this can be done, the fear which we term "dread" will be replaced by a finer fear which we call "awe". This is the purpose of all education whether religious, secular, or in the field of health.

Is this true of your health centers? I believe it is. No one who has followed this work can fail to be impressed that its basic purpose has been education,—education of the public in the prevention of disease and in the prolongation of human life. Taking into consideration your conglomerate population, made up of all nationalities and strata of society, it is safe to assume that Boston has not reached its enviable position with respect to its low infant mortality, its low tuberculosis death rate, its gradually decreasing diphtheria death rate merely through accident and inertia. What has been accomplished here, frequently under difficulty, has been due to the concerted, intelligent action of your city authorities through the health department in coöperation with the socially minded private agencies in your community.

Education has been the keynote of it all. No student of vital statistics, who has followed the improvement in our mortality during the past few decades and who understands the reason therefor, doubts that the extension and enlargement of the type of service represented by the health centers which you have created here in Boston mean the better education of your public with respect to preventable disease, and that this education will result year by year in an even further reduction both in morbidity and in mortality.

Those of us who can recall the earlier days marvel at the changes which have taken place within the last fifty years. Cholera and plague in the United States are unknown except in the medical textbooks. The mortality from tuberculosis, the dread disease of our forefathers, has been more than cut in two, with every probability that medical science will find the means of its final eradication. Smallpox is beginning to disappear on the eastern seaboard. The death rate from diphtheria is decreasing by leaps and bounds. Fewer mothers yearly are dying in childbirth. The infant no longer dies betimes. We see the possibility of ascertaining the cause of cancer. Scarlet fever, measles, and whooping cough will soon bow to the wand of medical science. The expectation of life is almost doubled. It is safe to say that further progress can be made. The great sanitarian, Dr. Biggs, has said that within limits each community can determine its own death rate. Fundamentally this means adequate expenditures, adequate equipment, and intelligent administration in the field of health education combined with facilities for competent diagnosis, treatment, and the furnishing of adequate economic, social and industrial environment.

In these days with our modern discoveries and inventions, it is idle to believe that with respect to health matters we should sit supinely and wait for the day when it becomes necessary to summon the doctor. We have not done this for decades. Instead, we have taken a position which is not fatalistic, even if it may have been paternalistic, which is a moot question. You here in Boston and others in other cities have realized what it means to anticipate and to prevent. It is this for which your health centers stand. It is this which has brought about in Boston, as well as in other cities, a better morbidity rate, a better death rate, a happier and more contented citizenry, a finer and a nobler community.

No one will deny that from the standpoint of curative medicine, it is fundamental that the personal relationship between physician and patient should be preserved. On the other hand, it cannot be denied that modern medical science has put a new concept in the field of medical practice. Today we are on the verge of a revolution in this field. Modern medicine, and particularly modern preventive medicine, is funda-

mentally the interpretation and application of modern medical research. The discovery of the germ theory of disease has changed the picture almost completely. If the full value of this discovery is to be gained, knowledge of it must be universal. Education in this field must begin with the child; it must be made a part of our public school education. It must be given to the adult. It must find its practical application in the type of health centers such as you have developed in this community. Modern medicine viewed from this point of view is a coöperative undertaking. It involves a definite understanding between the physician, the parent, the child, the teacher, the public health administrator, and the legislator. Only through such concerted, coöperative effort involving everyone in the community, can we hope to reach the goal which preventive medicine has set for us, the reduction of disease to its minimum and the prolongation of life for one and all to the full biological limit.

It is fundamental in modern industry that we eliminate waste. Machinery has been developed to obviate unnecessary human effort. Industry and commerce are making continuing self-appraisals to ascertain whether their methods and practices are inadequate and obsolete and if so to find newer and better ones. In financial circles, we have mergers and unions based on careful appraisal and study, all with the thought of greater efficiency and saving of waste. If we are to apply this principle to the saving of the wastage of unnecessary illness and premature death, medicine, too, must undertake a self-appraisal to ascertain whether its organization, methods and practices today are in accord with this desire and purpose.

Such appraisal must come from within, from the medical profession itself. It must be impartial, dispassionate, and comprehensive. It presupposes a thorough study of the relation of the physician to his patients, to the hospital, to the clinic, and to the lay organizations which aim to coöperate with him in the fulfillment of what I believe to be the common desire, namely the providing of adequate care of illness and the prolongation of life. Only such an intensive study and appraisal will bear fruit. Diatribe, and invective will get us nowhere. It is interesting to note in this connection, that the British Medical Association, after years of careful study, recently presented a report in which has been incorporated a plan for furnishing adequate medical care to the people of Great Britain. Quite aside from the merits of the plan, it is significant that it originated in the medical profession itself as a result of its own appraisal.

Is it too much to hope that the accredited medical associations of the United States and Canada may undertake a similar appraisal to ascertain whether changes are necessary in the organization and practice of medicine to have them conform fully to modern requirements? Such a study necessarily assumes the preservation of the professional, ethical, and economic status of the physician. It assumes as well, on the basis of careful analysis, the determination of the best methods of furnishing adequate medical care to every one at a cost commensurate with the service rendered.

ONE-STAGE VS. TWO-STAGE SUPRAPUBIC PROSTATECTOMY FOR BENIGN PROSTATIC HYPERTROPHY*

BY CHANNING S. SWAN, M.D.†

At a meeting of the New England branch of the American Urological Association, on February 5, 1929, a symposium on prostatectomy was held. Dr. A. L. Chute spoke on, "Certain Advantages of the Two-Stage Suprapubic Prostatectomy,"[1] and Dr. W. C. Quinby read a paper entitled, "Prostatectomy,"[2] in which he stated that out of the last eighty-three prostatectomies done at the Peter Bent Brigham Hospital, fifty-four were operated on by the one-stage suprapubic route, only thirteen by the two-stage method, and the other sixteen through the perineum. Stimulated by these very enlightening papers, I have investigated the last fifty successful suprapubic prostatectomies performed by Dr. John H. Cunningham during my association with him. The series goes back over fifty-four consecutive cases; there were four deaths, or a mortality of 7.4%, the cause of which will be discussed later in the paper. The last twenty-eight cases have been done without a death. Should we have chosen to report twenty-five cases instead of fifty, we could have reported a mortality of 0%. Thus, reported mortality statistics are often open to a flexible interpretation.

Twenty-three one-stage operations and twenty-four two-stage operations were performed; the other three were second stage prostatectomies on cases that had had the cystotomy performed elsewhere. Thus it is found that in this series there is almost an equal distribution between one-stage and two-stage operations.

What have been the determining factors in deciding upon one or the other method of procedure? We have considered all cases as potentially one-stage unless they proved otherwise. The series shows that over one-half the cases proved suitable only for the two-stage operation. Intolerance to in-lying catheter drainage or a necessarily prolonged drainage period to bring down the blood nitrogen and set aright the patient's

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general condition, particularly the circulation, have been the chief factors that have led to the choice of the two-stage method.

How long, on the average, are one-stage and two-stage cases drained before operation? Is there any great difference in healing time, i.e., from prostatectomy to discharge from the hospital, in the two groups? These questions are answered by the following statistics based upon the fifty cases studied.

ONE-STAGE CASES

	Days Drained	Days After Operation	Total Days
1	7	27	34
2	5	68	73
3	6	26	32
4	5	26	31
5	4	17	21
6	6	17	23
7	11	20	31
8	7	19	26
9	8	23	31
10	5	19	24
11	20	34	54
12	7	22	29
13	6	29	35
14	8	41	49
15	6	16	22
16	7	49	56
17	8	26	34
18	11	18	29
19	7	19	26
20	7	22	29
21	13	19	32
22	7	29	36
23	8	28	36

STATISTICAL SUMMARY OF ONE-STAGE OPERATIONS

Days Drained: (In-lying catheter)

4	days	one case
5	"	three cases
6	"	four cases
7	"	seven cases
8	"	four cases
11	"	two cases
13	"	one case
20	"	one case
Total		twenty-three cases

Average days drained 8

Healing:

Under	3	weeks	9 cases	39.1%
By	4	"	8 additional cases	73.9%
By	5	"	3 " "	87.0%
Over	5	"	3 " "	100.0%

23 cases

Average days from prostatectomy to discharge from hospital:

27 days for 23 cases
25 days for 22 cases (i.e., omitting the 68 days case)

Average days from entry to hospital to discharge from hospital:

34½ days, or 5 weeks, for 23 cases
32½ days, or 4½ weeks, for 32 cases (i.e., omitting the 73 days case)

TWO-STAGE CASES

	Days of Cath. Drain.	Days of Sup. Dr.	Total Dr. Days	Days After Operation	Total Days
1	6	34	40	22	62
2	15	22	37	20	57
3	3	18	21	18	39
4	1	19	20	20	40
5	10	17	27	29	54
6	4	22	26	22	48
7	4	22	26	22	48
8	4	14	18	31	49
9	1	46	47	136	183
10	4	37	41	21	62
11	2	17	19	14	33
12	3	21	24	34	58
13	4	20	24	22	46
14	4	17	21	24	45
15	4	5	9	47	56
16	4	10	14	19	33
17	1	23	24	38	62
18	2	19	21	33	54

The following six two-stage patients went home for a while between operations with the suprapubic tube in:

	Days of Cath. Drain.	Days of Sup. Dr.	Total Dr. Days	Days After Operation	Total Days
19	6	56	62	25	87
20	32	253	285	45	330
21	10	73	83	18	101
22	2	45	47	22	69
23	11	41	52	18	70
24	17	76	93	25	118

STATISTICAL SUMMARY OF TWO-STAGE OPERATIONS

Average days on Catheter Drainage 6½

Average days of Drainage (Catheter plus suprapubic):

45 days for 24 cases
34½ days for 23 cases (i.e., omitting the 285 days case)
25½ days for 18 cases (i.e., omitting the 6 cases who went home between operations)

Healing:

Under	3	weeks	8 cases	33.3%
By	4	"	8 additional cases	66.6%
By	5	"	4 " "	83.3%
Over	5	"	4 " "	100.0%

24 cases

Average days from prostatectomy to discharge from hospital:

30 days for 24 cases
24½ days for 23 cases (i.e., omitting the 136 days case)

Average days from entry to hospital to discharge from hospital:

74¾ days, or 10½ weeks, for the whole 24 cases
56½ days, or 8 weeks (omitting the 6 who went home between operations)
49¼ days, or 7 weeks (omitting the 136 days case as well as those who went home between stages)

The three patients who had their suprapubic cystotomies performed before consulting us were in the hospital three, five, and twenty-one days.

respectively, before we did their second stage. This difference in time is explained by the fact that two of the patients lived nearby and came into the office for blood urea and renal function tests, which had to reach proper standard before we admitted them to the hospital for prostatectomy. The third patient was sent to us from a distant point soon after his first stage, so had to remain three weeks in the hospital on drainage before operation was considered safe. After prostatectomy they remained respectively 36, 38, and 29 days in the hospital,—an average of 34 and a fraction days, or five weeks.

It is generally conceded that the one-stage operation is easier to perform but invariably more severe on the patient. We expect those selected for the one-stage operation to be the sicker group for a few days but then to heal up more promptly. The statistics quoted above show that the one-stage cases do heal up from one to three days quicker than the two-stage patients and that the three assigned to the two-stage procedure, on whom we didn't have the advantage of doing the preliminary cystotomy, took a further four days. Furthermore, a somewhat greater percentage of the one-stage patients were healed up by three, four, five weeks, etc., after the operation.

The advantage in time, however, is seen to be really but slight. What are a few days or a week longer in the hospital if the two-stage operation can be performed with an appreciably lower fatal risk? Perineal prostatectomy does not enter into the question in this paper; it admittedly carries the lowest mortality, but the functional results are often not so good.

Of the four deaths that occurred in this series, two followed the one-stage and two followed the second-stage operation. Thus there was an equal mortality for each type of operation. The one-stage deaths were due to bilateral parotitis with facial erysipelas, in one case, and to cardiac failure in the other. The two-stage deaths were due to phlebitis with pelvic cellulitis and eventual cardiac failure after a long drawn-out illness, in one case, and to uraemia in the other. We thought these cases had been studied and prepared as carefully as the others. A cardiac consultant had given a favorable report on the heart of the one-stage patient who died of cardiac failure twenty-four hours after operation. Needless to say, great care must be exercised in choosing the cases for the one-stage operation, and we are now of the opinion that in all cases where there is, in the surgeon's mind, any question of the patient's general condition, the two-stage operation should be chosen.

In conclusion, these statistics show that the patient who is going to have a prostatectomy may expect to have a period before operation of eight to forty-five days, depending on whether he comes up to standard for a one-stage operation or not. He may then expect to require from three to six weeks to heal up, unless unforeseen failure to close occurs. He has better than 33 1/3% chance of healing in less than three weeks. From entry to hospital to discharge, therefrom, he may count on about five weeks if he is a one-stager, to ten weeks if he is a long drained two-stager. Sixteen of the one-stagers and two of the two-stagers in this series were hospitalized less than five weeks. He must run the gantlet of a mortality percentage that varies from about three to ten per cent: 7.4% in this particular series. The mortality has been greatly reduced in the past decade. A previous paper[3] confirmed statistics of others to show that in the end the patient stands an 85% chance of getting a perfect functional result.

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SURGICAL MANAGEMENT OF GALLBLADDER DISEASE*

BY LESTER R. WHITAKER, M.D.†

THE decision between medical and surgical treatment of gallbladder disease is sometimes difficult, but in general depends upon rather definite criteria. That case should be medical where, with our improved methods of diagnosis, no structural abnormality of the viscus can be demonstrated. Supposed functional disturbance indicated by cholecystography is not sufficient reason for removing the gallbladder; furthermore, even though a patient gives a typical history of biliary colic and other classical symptoms of gallbladder disease, if the vesicle can be proved by cholecystography to fill normally and empty completely, it should not be removed.

However, if cholecystography indicates that changes in the viscus have become irreversible, the musculature having been rendered ineffective by sclerosis, with resultant stasis, or that stones have formed, the treatment should be surgical. Definite biliary colic followed by jaundice is an indication for surgery. Persistence of gastro-intestinal disturbance and attacks resembling biliary colic, recurrent in spite of medical treatment, especially with cholecystographic findings that are not entirely normal, justify laparotomy if the patient is a good risk.

The opinion is commonly held among medical

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men, that, even though a definite lesion of the organ be demonstrated, if the symptoms cannot be proved to be caused by it, the gallbladder should not be disturbed. But our powers of interpretation of symptoms have not yet developed to the point where we can say unreservedly that a certain symptom, even the most typical, is due solely to a certain condition of disease; or that some other symptom, not previously assigned to it, may not arise from this condition.

As a criterion for decision between medical and surgical treatment it would seem that the demonstration of a normally filling and completely emptying gallbladder by cholecystography should bear more weight than a typical history of biliary colic; and that with a patient presenting these two conflicting pieces of evidence the gallbladder should not be disturbed.

On the other hand, even though typical symptoms be lacking, if disease of the gallbladder can be visibly demonstrated it should be removed.

Physicians often advise postponement of cholecystectomy on the ground that many patients show no improvement afterward. The gallbladder is not a vital organ and there is no physiological evidence that the loss of it causes trouble. We are not certain whether more unsatisfactory results come from faulty surgical management or from the procrastination of patient and medical advisor. Excessive trauma to viscera or damage to bile ducts may occur during a surgical operation, but it is safe to say that usually a bad postoperative result comes from delay to the point where the liver is markedly diseased, the pancreas affected, obstructive jaundice encountered, or acute cholecystitis developed.

For these reasons, the decision between medical and surgical treatment of gallbladder disease should depend upon most thorough investigation and most careful judgment.

DIAGNOSIS

History is important but its evidence is presumptive, while cholecystography, properly applied, offers a means of proving in a large proportion of cases whether the gallbladder is sufficiently diseased to warrant operation. The oral method of giving the drug for this purpose may answer, but if the result is doubtful, the intravenous route, or a combination of the two[1], should be used. Absorption of the drug in the alimentary tract is so problematical that occasionally a normal vesicle may not fill with the opaque substance when administered orally. It is deplorable that normal gallbladders are often removed because they fail to cast a shadow by the oral method of cholecystography; doubly so when failure to cast a shadow by the intravenous or combined method is one of the most accurate x-ray tests that we possess. These methods are more difficult and time consuming but this is no excuse when making a decision as to the advisability of a major surgical operation.

After the absence of shadow formation by the intravenous method the most important cholecystographic sign of gallbladder disease is the mottling of the image with negative shadows characteristic of stones. To be significant this must be observed in several plates. Also the gallbladder should be induced to contract by a meal rich in fat, thus reducing the amount of opaque material in the vesicle and allowing differences in density due to stones to be brought out by greater contrast. Furthermore, contraction of the gallbladder lifts its fundus up under the liver, thus reducing confusion from intestinal gases or fecal content. Occasionally stones containing a large amount of calcium are visible radiographically without the administration of opaque material.

These, then, are the signs of definite gallbladder disease—failure of the gallbladder to fill with opaque substance introduced by the intravenous route; the elicitation of constant negative shadows in the cholecystogram, indicating stones, or the demonstration of calcium stones on a simple radiograph.

On the other hand, there is a cholecystographic sign which is a definite indication of a normal gallbladder, or strictly speaking, one not sufficiently diseased to require surgery. It is the observation, following a meal rich in fat, of the progressive reduction in size of the vesicle to one-tenth or even one-twentieth its original volume, with absence of the mottling characteristic of stones. An error almost universally committed is to pronounce a gallbladder normal if the shadow reduces one-half in size in from one to four hours after a fat meal. Further contraction must be obtained to be sure that no stones are concealed. *Cases have occurred where it was necessary to observe the gallbladder for twenty-four or more hours before emptying had reached the point where stones were discernible.* Without this care they certainly would have been overlooked.

Another common error is to pronounce a gallbladder diseased because it is slow in emptying. Many a patient has been subjected to an unnecessary cholecystectomy because the shadow did not reduce after a fat meal as fast as the roentgenologist thought it should. It must be remembered that physiological processes are variable. In many cases it has been possible, by observation of contraction to complete emptying, even though prolonged, to prove that a surgical operation was not required.

The converse is not necessarily true, namely, that a gallbladder which is not observed to contract at all, or only slightly after a fat meal, is diseased. This is presumptive evidence of a dangerous kind. It is not nearly so valuable in diagnosis as a history of typical biliary colic. However, a sluggishly emptying gallbladder is to be suspected, especially if the story is suggestive. It would seem that in such a case a trial of medical treatment should be made, to be followed,

if ineffective, by reëxamination, and surgical treatment if the condition persists.

SURGICAL TREATMENT

Generally speaking, a gallbladder which is structurally altered to the point where it can not return to normal and which is apparently producing symptoms should be removed. Its removal is a process which requires as much care and thought in the preparation, execution and after treatment as the decision to remove it.

If the patient is a poor operative risk, efforts must be made to improve his condition. There are cases where delay is advisable, but it must not be forgotten that this delay may be more dangerous than the operation. General acidosis and dehydration should be relieved before surgery is attempted. If jaundice is present, this must be studied through the icterus index, stool, and urine examination; if it is found to be diminishing and other signs are not urgent, delay is advisable, coupled with administration of calcium for increasing the coagulability of the blood.

The acutely inflamed gallbladder, indicated by signs of infection and toxemia, with probably a tender mass in the right upper abdomen, as well as other signs of gallbladder disease, is a special problem. The first consideration is that of infection and toxemia. Expectant, symptomatic treatment is usually followed during the acute stage, but the advisability of this is doubtful, because it is contrary to the surgical principle that an infective focus should be drained or removed. The only reason why it is safer to leave an acutely inflamed gallbladder in place than an acutely inflamed appendix is that the gallbladder contains more elastic tissue and is less liable to rupture. But serious infections of the liver or of the pancreas are real dangers, and rupture of a gangrenous gallbladder is not unknown. The most reasonable course, then, would seem to be operation at the earliest possible moment after a diagnosis is made. Procedure should depend upon the general condition of the patient and upon local factors. If the subject is a good risk, the gallbladder not too severely diseased, or too large or adherent, and the liver not markedly involved, removal may be attempted, preferably from above downward. To facilitate exposure, the contents of the vesicle may be aspirated after dissection is started. Bleeding from the liver bed may be controlled by electrosurgical methods. Or if removal would be dangerous, the operation of Pribram[2] may be performed; the gallbladder is emptied; split to the cystic duct, which is tied; the mucosa destroyed with a cautery; and the edges whipped over with a continuous stitch. Likewise a modification of this method, using the electrosurgical unit, may be employed; instead of the actual cautery for destruction of the mucosa fulguration is used[3]. Another modification is to cut the gallbladder away along its attachment to the liver, leaving the section in contact with the liver in place. The cutting can be done with the electrosurgical unit, the hemorrhage controlled by clamping and tying the larger vessels and coagulating the smaller ones, the remaining tissue of the gallbladder being fulgurated.

There is considerable danger of hemorrhage during or after the operation in removal of an acutely inflamed or gangrenous gallbladder, either with the usual method or any of the modifications mentioned. The danger of spreading infection through the abdomen is also an important consideration in these conditions. If, then, the disease has progressed to the point where any extensive operative procedure would be too risky, the vesicle should be drained.

One method of handling a gangrenous gallbladder by drainage is to evacuate the vesicle and make a large opening in the fundus through which numerous Penrose drains or a moderate amount of gauze packing is inserted, bringing the drainage material through an opening in the abdominal wall nearly the size of the fundus of the gallbladder. The object in this case is to secure free drainage over a considerable period of time in the hope that the cavity of the gallbladder will eventually become obliterated by healing from the bottom in the same manner as that of an infected sinus. If the vesicle is not too friable, and yet for some reason drainage is preferable to removal, a tube may be inserted into it according to the usual method. This operation is so simple that often it may be done with a local anesthetic. *There is no possibility, however, after a drainage that the gallbladder will again become normal* and, if the patient's condition permits, it should be removed later. Preliminary drainage of an acutely inflamed gallbladder is analogous to cecostomy before colonic resection or enterostomy in acute intestinal obstruction, now recognized as lifesaving procedures.

The methods for removal of the chronically inflamed gallbladder are in general two: from above downward and from below upward. With a fibrotic, adherent organ, where the anatomical relations are not clearly defined, dissection from above downward is far safer, keeping close to the vesicular wall, as should be done with any cyst elsewhere in the body.

With the sclerotic gallbladder this process can be effectively carried out by electrosurgery, using the cutting current with moderate dehydration. The reduction of bleeding and the great ease with which the high-frequency current cuts the dense tissue facilitate dissection. If other structures are closely adherent, it is better to cut through the outer layers of the gallbladder, leaving this tissue to be reduced by sclerosis.

Even though a gallbladder is not severely diseased and can be dissected easily by ordinary methods, removal from above downward has advantages. Sufficient exposure can be obtained

through a comparatively small incision. It is much easier and less dangerous to expose the fundus of the vesicle than the cystic duct for the first point of attack. The only disadvantage to this method is that considerable bleeding is encountered from the radicles of the cystic artery when carried out in the usual manner. This can be handled readily by using a modification of Doyen's sub-peritoneal dissection, rather than the usual method of cutting through the peritoneum along the sides of the gallbladder, which severs the smaller vessels. A circular incision through the peritoneum at the fundus is almost bloodless. Then by stripping the peritoneum away from the viscus a few tough fibrous strands are developed, running longitudinally between the muscular wall and the serosa. These strands contain branches of the cystic artery; they can be separated from the vesicle and clamped and tied high up. Dissection then proceeds close to the gallbladder, the strands, with the artery, being removed with the serosa.

Often only one large fibrous strand is encountered, which contains the main branch of the cystic artery. If this is secured high up and separated from the vesicle, the operation is almost bloodless. As dissection proceeds the folds in the neck of the gallbladder straighten out by traction, the vesicle gradually delivers, and the cystic duct is readily approached without danger to vital structures nearby, except that *care should be taken not to pull up the common duct by traction on the cystic duct and accidentally cut or tie it.* A drain can be placed inside the peritoneal sac or outside it as conditions indicate.

The most favorable instruments for the dissection described are a long, narrow, stiff-bladed retractor to be used by the assistant in conjunction with a long-handled, fine, curved, round-pointed, scissors, and long thumb forceps by the operator.

I am in the habit of using for exposure a self-retaining retractor (Balfour) with a flexible metal blade (Dudley-Smith) attached to the left side of the frame, which, placed over gauze packing, holds the stomach and intestines out of the field. In this manner constant exposure is maintained, and the left hand of the assistant, ordinarily used for retraction, is freed for other purposes. After a little experience this operation can be performed as easily and quickly as cholecystectomy by any other method; and with the advantages of greater safety, less trauma to other structures in obtaining exposure, and a smaller abdominal incision.

The most important point in removal of the gallbladder from below upward is the careful isolation of the cystic duct by inspection, palpation, and blunt dissection. Until this is done a clamp should not be applied; there is too much danger of damaging the hepatic duct, common duct, or hepatic artery. After the cystic duct is cut off dissection should proceed close to it and to the gallbladder. Contrary to the general practice, a clamp should not be applied where the cystic artery is supposed to be. Again there is too much danger to important structures. Even though an artery is isolated in the right location it may be an anomalous branch of the hepatic artery. If dissection is carried close to the cystic duct, the cystic artery will be pushed away from the duct until the liver bed is reached. There it may be safely clamped and tied. Sometimes the gallbladder can be dissected away from the artery up to the smaller radicles, hemorrhage from which is negligible.

Neither in removal from below upward nor from above downward should the gallbladder be stripped away from the liver bed. This leaves a raw, bleeding surface which will drain bile. It should be carefully dissected through the areolar tissue plane between it and the liver. If this is done, the liver-bed need not be stitched. A tab of omentum placed in the vesicular fossa tends to prevent adhesions to the stomach and duodenum.

The question of postoperative drainage next arises. Drains are a peritoneal irritant; they stimulate fibrosis and always produce adhesions. If the cystic duct has been isolated and securely tied, but not tightly enough to produce too rapid sloughing; if bleeding has been definitely controlled, and the liver not damaged, drainage is not essential—otherwise it is.

With jaundice, the cause of which is a stone, exploration and drainage of the common bile duct is imperative. This should be done with as little damage to the common duct as possible, preferably through the stump of the cystic duct. Sometimes a stone or cholesterol débris is so firmly packed into the ampulla of the common duct that its removal through an opening in the second portion of the duodenum is advisable. The incision in the duodenum must, of course, be firmly closed to prevent leakage of pancreatic juice, drainage being obtained through a catheter in the stump of the cystic duct. Where these measures can be carried out, they are preferable to drainage of the common duct itself, since there is less danger of postoperative stricture, one of the worst accidents in surgery.

With a history of transitory jaundice, from which the patient has been free for several months or years, and with negative tests, exploration of the common bile duct is a procedure of doubtful merit. It greatly increases trauma and shock at the operation. There may be a leakage of bile and pancreatic juice afterward, with resulting peritonitis and adhesions, if not more serious complications. It seems preferable in these cases to examine manually the common duct as well as may be with a finger in the foramen of Winslow and the tissue of the lesser omentum and duodenum between the thumb and finger. Thus any considerable abnormality can be apprehended. A good method

of testing for stone in the common bile duct or hepatic ducts is to inject iodized oil (about 20 c.c.) with moderate pressure through the cystic duct. If there is no abnormal obstruction, the opaque oil fills the common and hepatic ducts, and passes through into the duodenum, which can be observed fluoroscopically or roentgenographically.

CONCLUSION

The important point to be emphasized in this discussion is that an intimate correlation should exist between careful, preliminary diagnostic study and the plan of treatment. The extremely accurate anatomical diagnosis made possible by proper application of cholecystography favors a better adapted surgical technique. For example, when no shadow is produced by cholecystography, we know that the gallbladder, and perhaps other viscera, are quite markedly diseased, and, consequently, that a regular abdominal incision will be necessary; we infer that removal of the vesicle from above downward will be preferable, and that electrosurgery may offer a great advantage. Or with a gallbladder proved by cholecystography to contain stones and yet to be thin walled, contractile, and having a serosa which will strip away readily, we may plan a subperitoneal resection, with the advantage of smaller abdominal incision and increased safety. If careful study has ruled out other pathology, the sub-peritoneal resection can be done through an extremely small opening, from above downward, without gauze packing or other traumatism of abdominal viscera. Thus operative shock can be reduced, the risk minimized, convalescence shortened and made more comfortable, and adhesions prevented.

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INTERSCAPULO-THORACIC AMPUTATION*

Report of Two Cases

BY ERNEST M. DALAND, M.D.†

AMPUTATION of the upper extremity together with the shoulder girdle is a comparatively rare operation. Its rarity lies chiefly in the small number of cases in which it can be used with any hope of success. Sarcomas of various kinds and traumatic injuries are the chief conditions in which it is indicated. Two cases are cited where it has apparently been successful for a period of two years, where successive minor procedures failed.

The technique as described by Berger[1] consists in the resection of a portion, or all, of the clavicle and the ligation of the subclavian vessels, cutting the anterior skin flap and severing the brachial plexus, cutting the posterior flap, and the removal of the extremity. The patient lies on his back with a pillow between his shoulders, the body close to the edge of the table, the shoulder free from the table and the arm held by an assistant. An incision is made along the clavicle, beginning at the outer border of the sternomastoid and terminating just beyond the acromio-clavicular joint. This incision should divide all structures down to the bone. The periosteum is separated from the bone, particular care being shown when it is separated from the posterior surface. A blunt hook is passed beneath the bone and traction exerted while the bone is sawed at the junction of the inner and middle thirds. A second cutting of the bone at the junction of the outer and middle thirds exposes the subclavius muscle, division of which exposes the subclavian vessels. The artery and then the vein are doubly ligated and cut.

The arm is now abducted. An incision is made from the clavicular incision downward and outward parallel to but external to the groove separating the deltoid and pectoralis major to the junction of the arm with the body, then across the axilla to the latissimus, and downward to the middle of the posterior surface of the angle of the scapula. The incision is deepened, the pectoralis major is divided near the tendon and the minor near its insertion on the coracoid process. The cords of the brachial plexus are ligated, injected with alcohol in their proximal ends and divided distal to the ligature. This separates the shoulder from the body.

The long thoracic artery is ligated and the latissimus divided so that the inferior angle of the scapula is exposed. The arm is placed at the side and the trunk lifted up for the posterior incision. This starts at the outer end of the first clavicular incision and extends down by the shortest line to the inferior angle of the scapula to join the anterior incision. The trapezius muscle is freed from the clavicle and the spine of the scapula. The scapula is freed from the trunk by cutting the omohyoid, levator anguli scapula, the rhomboids and the serratus. The suprascapular and posterior scapular arteries are ligated.

There is very little bleeding until this last stage, but even then the bleeding is not severe. The skin flaps are sutured and a large dressing applied. No drainage is necessary, but may be used for a day or two if desired.

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The most essential part of the whole operation lies in the early ligation of the subclavian vessels. When that is done, the greater part of the operation is bloodless, but, if not done, the outcome may be very serious.

CASE I. (Pondville Hospital 243.) J. H., aged 37, married, Greek, was admitted on January 12, 1928 with a recurrent sarcoma of the right upper arm. Thirteen years before he had injured a finger on the left hand while working in a mill. The wound was sutured, but shortly after a growth appeared at the site of injury between the thumb and forefinger.

X-rays at the Massachusetts General Hospital in March 1915 showed what was thought to be a foreign body. A fibrous tumor was removed and reported to be a fibrosarcoma by Dr. Whitney. This recurred and it was operated on three times more, at the Lowell Corporation Hospital, then in 1919 and 1922 at the Lowell General Hospital.

In 1923 the growth recurred and amputation was advised at the Huntington Hospital. At the Lowell General Hospital amputation of the arm was done at the junction of the upper and middle thirds of the humerus and a pathological report of spindle cell sarcoma was made. The patient thinks there was a lump in his axilla previous to this operation. For two years following this operation he received x-ray treatment. In 1926 biopsy of the axillary mass

FIG. 1. Case I. Recurrent sarcoma in axilla before operation.

at the Lowell Corporation Hospital showed sarcoma.

On admission to the Pondville Hospital the patient's chief complaint was pain in his axilla. Examination showed a fairly well developed and nourished man and the findings were negative except for the local disease. There was an amputation through the junction of the upper and middle thirds of the right humerus. The stump was movable and the shoulder joint normal. In the axilla was a scar of two previous operations between which was a large, fluctuant, slightly tender mass. Behind this was a mass the size of an orange, which was firm, and probably represented metastatic tumor. X-rays of the chest were negative.

The patient received one series of deep x-rays without change in the size of the tumor. On his return on March 22, 1928 he complained of constant pain in his shoulder and back, so that he was unable to sleep at night. Operation was advised.

On March 26, an interscapulo-thoracic amputation was done under ether, according to the technique previously described. The one mistake made was in attempting to outline the skin flaps before ligating the subclavian vessels. Bleeding was profuse and much valuable time was lost in checking it. The operation took about two hours and during the last twenty minutes the patient's blood pressure dropped to 70. Saline was given intravenously and caffeine hypodermically with immediate improvement.

The patient made a good convalescence from the operation and was discharged on April 10.

The pathological report was "fibrosarcoma with negative lymph nodes." (Dr. Warren.)

FIG. 2. Case I. After operation.

This patient was examined on June 8, 1930. There was no sign of recurrence. There were no signs of lung metastasis. He was entirely free from pain. Two years is not sufficiently long to say this man is cured, but the result thus far justifies the operation.

CASE II. (Massachusetts General Hospital 271115.) L. B., aged 59, a married Jewish tailor, was first admitted on July 28, 1925 with a tumor of the left upper arm. Two years previously a "lipoma" had been removed from a point just back of the present lesion. Five weeks later the tumor had recurred and it had grown slowly. On admission, examination showed a longitudinal scar two inches long on the inside of the left arm, one and one-half inches below the axilla. Anterior to this there was an irregu-

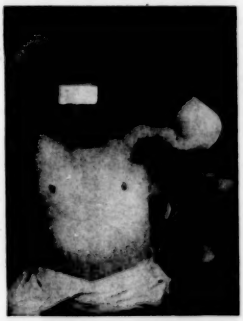

FIG. 3. Case II. Recurrent sarcoma of the upper arm before interscapulo-thoracic amputation. Patient is wearing gauntlet to correct wrist drop.

lar, movable, non-tender mass, not attached to the skin. It was the size of a walnut and there were no glands.

On July 29, 1925 operation was performed by Dr. G. W. Taylor. The tumor was enucleated from with-

in the triceps muscle. Pathological examination showed a hard spherical tumor, the size of an English walnut, with a thin covering of muscle. On section it showed a white fibrous surface. Microscopical examination disclosed a cell-rich tumor composed of atypical cells of the fibroblast type, which invade striated muscle—"fibrosarcoma".

Second entry. March 24, 1926. There was a recurrent mass, 5 x 2.5 cm., underlying the scar. Operation—Dr. Daland. The tumor lay in the middle third of the triceps muscle and this portion of the muscle was removed. The main nerve trunks of the arm were dissected out and the contents of the axilla removed. Pathological report was: "Fibrosarcoma; glands negative."

Third entry. March 25, 1927. There was a recurrent

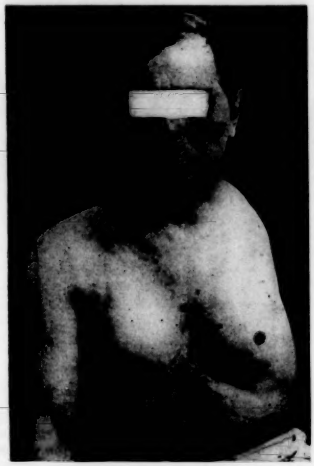

FIG. 4. Case II. After operation.

FIG. 5. Case II. After operation.

FIG. 6. Case II. With appliance to build up shoulder.

FIG. 7. Case II. Showing improvement in appearance with the appliance in use.

nodule 1 x 1 cm. below the posterior axillary fold. Operation—Dr. Daland. Excision of recurrent nodule. The ulnar nerve was exposed but not injured. Pathological report was "Fibrosarcoma."

Fourth entry. May 3, 1927. He had worked regularly at his trade as a tailor. Recently there had been increasing weakness of his triceps. Examination showed induration along the distal portion of the scar. Operation—Dr. Daland. The old scar was excised. The scar tissue was dissected off the ulnar nerve and one or two fibers cut across. The musculospiral nerve was freed. Median nerve not seen. Pathological report was "Chronic inflammation." For a few days following operation he had partial musculospiral paralysis, but this cleared up and he returned to his work as a tailor.

Fifth entry. September 9, 1927. Examination showed a recurrent nodule at the lower end of the scar. Operation—Dr. Daland. Removal of median head of the triceps with recurrent tumor. Dissection of musculospiral nerve, ulnar not seen. Pathological report was "Fibrosarcoma."

Sixth entry. October 20, 1927. Examination showed a recurrent tumor in the upper end of the scar. Operation—Dr. Daland. Two large tumors were found involving the main nerve trunks. The musculospiral nerve passed through one and one inch of this nerve was removed. A nerve which was taken for the median but which proved to be the ulnar was divided. Pathological report was "Fibrosarcoma." From this time on the patient was unable to work.

Seventh entry. May 3, 1928. Examination showed a trophic ulcer over the elbow with a recurrent mass low down in the axilla, the size of a hen's egg. Operation—Dr. Daland. Interscapulo-thoracic amputation of the left arm. Gas and ether. The technique previously described was used. The operation was done in fifty minutes. The patient's blood pressure was 140/80 at the start of the operation. It fell to 60 after the clavicle was cut, but gradually rose and at the end of the operation the systolic pressure was 80 and the pulse 80. His condition was good. One wick was used and this was removed on the third day after operation. He left the hospital in two weeks.

The pathological report was as follows: "Specimen consists of the entire arm with scapula. There is a bulging tumor in the axilla at the site of the old scar. The tumor is 5 cm. in diameter, is lobulated, and extends from the skin surface to the shaft of the bone. It invades the triceps from the head of the humerus above to about one-third the length of the arm below. Microscopic examination shows small pleomorphic cells arranged in ill-defined bundles with little intercellular substance. There are many mitotic figures. Its structure is more anaplastic than the previous recurrences. "Fibrosarcoma."—Dr. Harry Hartwell.

Aside from a cervical hypertrophic arthritis of which he complained before operation, the patient has had no pain since operation. There has been no recurrence and no lung metastasis. He was last seen on July 28, 1930.

The deformity from this operation is appalling. One little realizes what a part the shoulder girdle plays in the appearance of the individual. To offset this deformity the second patient, who was a tailor, constructed a vest with a padded shoulder to fill out his coat. With this appliance his deformity is much reduced. A similar appliance is being made for the other patient. Neither patient has had any discomfort from his scar. There has been no formation of a neuroma.

SUMMARY

1. The technique of interscapulo-thoracic amputation is described.
2. Two cases are reported in which this operation has been done.
3. The operation is indicated in traumatic and malignant conditions of the arm and shoulder where simple disarticulation would be insufficient to remove the damaged areas.
4. An appliance for reducing the deformity is illustrated.

REFERENCE

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A CASE OF SUPPURATIVE TRANSVERSE MYELITIS

BY F. R. BARNES, M.D.*

THE term "transverse myelitis" is applied with much latitude by diagnosticians to many types of changes in the spinal cord which are due to inflammation, both acute and chronic. It includes pathology from vascular conditions resulting in softening of the cord, from caisson-disease due to lessened atmospheric pressure, lesions from trauma, disease, or the growth of neoplasms. Focal infection areas, also, may subsequently cause localized inflammatory disorders of the spinal cord. Glass[1] reports a case of dorsal transverse myelitis in which a man was completely paralyzed in the lower extremities; after several abscessed teeth were removed (in this case the focal infection), there was a slow but gradual improvement in his condition. The Bell Memorial Hospital[2] reports a case of a woman, 45 years of age, who had transverse myelitis after hysterectomy and appendectomy. She complained of severe pain in the legs, back, and groin. X-ray examination revealed a deviation of the sacrum to the right; a shadow was apparent on the right side of the tenth thoracic vertebra and the fourth lumbar vertebra tilted downward. Several lumbar punctures indicated that some sort of lesion from an infectious process was involving portions of the spinal cord. After laminectomy, a longitudinal section through the dorsal portion of the dura revealed a thin, translucent membrane and underlying fluid. The spinal canal was excessively filled with a mass of chronic inflammatory tissue, which extended up to the eighth dorsal cord segment. White, sclerotic patches and the escape

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of sub-arachnoidian fluid indicated arachnitis and leptomeningitis. The motor and sensory disturbances below the level of the compression were not relieved by the laminectomy and complete paralysis persisted for two months, this being the patient's condition at the time when the article was written; recovery was not anticipated.

McBride[3] describes a case of transverse myelitis with sclerosis of the cord in the middle and lower thoracic regions. Following an attack of influenza, a man, 38 years of age, developed multiple extensive decubital ulcers on the pelvis, buttocks, and lower extremities. He complained of severe pain in both dorsal and thoracic sections of the spinal cord, the symptoms in general being like those of a cyst or neoplasm. A gradual paralysis of arms and legs resulted and death followed two months later. Autopsy revealed on the surface of the cord small grayish, yellowish nodules and necrotic areas. Along the cords were constricted areas of lesser diameter than the normal diameter of the cord, filled with hyalinized glia tissue and dense masses of lymphoid cells. Portions of the cord showed karyorrhexis and parts of the cord substance were replaced by desquamated lining cells, necrotic tissue, and a yellowish-white exudate. In the unaffected sections of the cord there was a slight increase in the cerebrospinal fluid and a slight thickening of the leptomeninges. This case is remarkable because usually in a case of transverse myelitis a definite portion of the cord is involved, whereas in this patient different neurons were affected at different times. The myelitis occurred as a result of influenza, the only possible infective agent. To the writer's knowledge, there is no case like it on record.

Nothnagel[4], who has made an exhaustive study of pathology of the spinal cord, considers central transverse myelitis, in which the central canal is dilated and filled with a fibrino-purulent material, very rare indeed. Compression due to a focal infection rather frequently permeates the cord and passes to its membranes in the form of epidural exudates. The lesions may be dural, extra-medullary, or intra-medullary. The termination of myelitis in abscess is very rare; the result is an incurable residual process such as cicatrization, degeneration, formation of cysts, tumors, or other neoplasms, causing gradual paralysis and muscular atrophy. Kerlin[5] presents a series of six cases and discusses some interesting and rare lesions of the spinal cord, but the cases are illustrative of transverse myelitis due to compression from cysts and tumors and are not purely suppurative.

The following case is of such rarity as to warrant reporting, there being no case in the literature which quite corresponds.

The patient was a boy of 18, an electrician by occupation, and was seen in consultation. He had been perfectly well until seven days before he was seen. At that time he had gone to his doctor because of pain in the lumbar region; he was given salicylates, which afforded him some relief. Two days later he saw his doctor because of a small infection about the size of a ten-cent piece just under the skin of the palm of the left hand. The day after this the pain across the lumbar region had become so severe that the doctor was unable to relieve it except by one-half a grain of morphia in divided doses. This gave relief for about twenty hours, when the morphia dose had to be repeated. This repeating of the morphia dose occurred on the morning of the day on which I saw him.

His chief complaint at this time was inability to urinate and inability to walk, a condition which his doctor felt might be ascribed to the effect of the morphia. His past medical history revealed that his tonsils and adenoids had been removed, two years previously, because of an arthritis of the right ankle. There had been no return of the arthritis, and, as a matter of fact, the boy was in unusual vigor and excellent health until the onset of his present condition.

Family history: **His father died of carcinoma of the stomach. His mother and one brother were living and well. There were no dead brothers or sisters.**

Physical examination showed an unusually well-developed young man. His pupils were pin-point, apparently due to the morphia which he had had about an hour previously. The teeth were excellent, the tonsillar fossae were clean, and there was no tenderness over the antra, sinuses, or mastoids. His neck and thyroid were normal. His heart was normal. The blood pressure was 140/70. The lungs were normal. The reflexes of the upper extremities were normal. The abdomen was negative. The reflexes, motor power, and tactile sense of the legs were absent, as were also heat and cold sensations. A diagnosis of transverse myelitis was made.

The only possible focus of infection that we were able to find was obtained from the history. The patient had had six boils around the buttocks during the eight weeks prior to this illness. On examination of this area there was nothing to be seen excepting the pigmented spots where the boils had been. He had had no furuncle more recently than two weeks previous to the onset of his present condition. The boy was referred to the hospital. He suffered the most excruciating pain, the painful area gradually rising higher and higher.

Physical examination in the hospital was essentially the same. There was an area of anesthesia at the level of the umbilicus and an area of hyperesthesia which extended about three centimeters higher, this area of anesthesia and hyperesthesia gradually rising until it had reached the level of the nipple at the time of death, seven days after admission to the hospital.

The blood count was normal except for a white count of 15,800. The differential count was normal. The spinal fluid showed the initial pressure of 7 mm., the pressure rising to 20 when the patient strained. There was no increase on jugular pressure. The cell count was 29 per cmm. The lymphocytes and polymorphonuclears were equally divided. The globulin, total protein, and cultures were negative. Repeated blood cultures were negative. Urinalysis, non-protein nitrogen, blood sugar, and creatinin were all normal.

The autopsy report follows:

The contents of the chest, the peritoneal and the retroperitoneal cavities were all normal in every way. Culture of the heart blood taken at the time of the autopsy was negative. The spinal cord from the ninth thoracic vertebra to the cauda equina showed nothing on the surface, but as soon as the coverings were opened a purulent mass, with prac-

tically no cord tissue remaining was revealed. The gross appearance of the cauda itself was normal. The cord from the ninth to the eighth thoracic vertebra was somewhat injected, but from this point upwards it was normal. The brain was negative both microscopically and macroscopically. The pathologist reported that from the portion over the cauda equina upward for several inches there was no demonstrable nerve tissue. The capillaries over the cauda were deeply injected. Sections of the cord above showed engorged capillaries, hemorrhages, leucocytic and perivascular infiltration. Culture of the spinal cord showed a pure culture of staphylococcus aureus.

Laboratory examination:

Macroscopic: The spinal cord is represented by a small section of the dorsal portion and the cauda. Between these two parts there is no demonstrable cord. The capillaries over the cauda are deeply injected. The cut surface of the dorsal and lumbar portions of the cord has the consistency of thick cream.

Microscopic: Sections of the small bit of dorsal cord show engorged capillaries and hemorrhages in degenerated nerve tissue. Many of the capillaries are filled with leucocytes; others show perivascular infiltration with leucocytes.

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PREVENTION OF COLDS BY VACCINE THERAPY

BY HALSTEAD G. MURRAY, M.D.*

HEAD colds and other infections of the upper respiratory tract cause more lost time and discomfort among industrial, mercantile and school groups than any other one disease. Much has been written about the head cold, the lost time it occasions, and the dangerous sequelae which may follow in its wake. So far, scientific medicine has been unable to bring forth a specific cure for this common ailment and the different treatments recommended for its prevention or cure are legion. Recently the administration of stock catarrhal vaccines has been given a trial by many medical practitioners and everyone who has tried this preventive treatment must be struck at times, by the remarkable results obtained, but must also be impressed by the many absolute failures.

In the Dennison Manufacturing Company Clinic, it was decided to offer this vaccine treatment of colds to any persons who desired to try it. Naturally, those who took the treatment were those susceptible to head colds to the extent that they had several colds each year, were very much annoyed with them, and lost time from work. The vaccine was given subcutaneously in five graduated doses, 2m, 4m, 6m, 10m, and 15m, at intervals of 48 to 72 hours. About 1% of the inoculated persons had rather severe reactions, which were ushered in, about six hours after taking the vaccine, with severe chill, headache, malaise and aching joints, lasting from 18 to 24 hours. The majority had only a slight tenderness at the site of injection.

In 1927, eighty-three persons were inoculated against colds with a stock catarrhal vaccine. Their ages varied from 18 to 74, the average age of the group being 43 years. This group reported as having had 284 colds during the winter of 1926-27, while during the winter of 1927-28, following the inoculations against the colds, the group had 99 colds. Nine persons did not want the treatment again as they felt they were in no way benefited. The results in these patients were as follows:

29 people were entirely free of colds for five months
13 people were entirely free of colds for four months
16 people were entirely free of colds for three months
25 people had colds within two months after the inoculation.

Fifty-eight persons, therefore, out of a group of 83 persons were for three months or more free from colds.

In 1928, one hundred and sixty-nine persons took this treatment against colds; of these

84 persons were free from colds for four months or longer
25 persons were free from colds for three months
45 persons were free from colds for two months
15 had colds almost continuously following the inoculations.

The following questionnaire was sent to 61 persons in the plant who had had the vaccine treatment for three successive years:

(1) How many colds per winter did you average before taking the vaccine as a preventive treatment?
(2) How many colds have you averaged per winter since taking the vaccine treatment?
(3) Has the vaccine treatment helped as a preventive of colds?
(4) Do you wish to continue the treatment?

Answers

(1) The group had 245 colds per year before taking the vaccine treatment. Four reported continuous colds. This gives an average of more than 4 colds per person.

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(2) After vaccine treatment, this group has had 95 colds per winter, or an average of 1½ colds per person.

(3) 60 persons reported that the treatment had helped them; one person reported no benefits.

(4) 59 persons wished to continue the treatment; one did not want it again; and one man was doubtful.

CONCLUSIONS

(1) Catarrhal vaccine as a preventive for head colds is uncertain as to results.

(2) The treatment might well be offered as a preventive treatment to persons unusually susceptible to head colds, after its limitations have been definitely explained.

(3) Any physician giving this vaccine treatment will be impressed with some of the results obtained and disappointed in other cases.

(4) In the group who have had the vaccine treatment for three successive years, the number of colds has been reduced from 245 to 95, a percentage gain of 61%, and the average of four colds per person has been cut to 1½ colds per person. This reduction makes the treatment in industry economically sound.

(5) One would be safe in saying that the catarrhal vaccine as a preventive of colds seems to be helpful in 50% of the persons taking it.

FASCIAL STRIPS IN PATELLA FRACTURES

BY PEIRCE H. LEAVITT, M.D.*

SEUBERT[1], in 1915, reported the use of a strip of fascia lata the same size and shape as the bone he was repairing. The strip was secured in a circular manner around the patella margin by fine silk sutures. Five weeks later the patient could walk up and down stairs without difficulty, and motions of the knee-joint were almost normal.

Vorschütz[2], in 1925, encircled the patella with a strip of rolled fascia lata. Eight weeks later, his patient had 75 degrees flexion and was able to return to his work.

Gallie and LeMesurier[3], in 1927, advised the use of heavy sutures of fascia.

We, of course, make no claim to priority in the method described below, but it has been so satisfactory that we would like to report it. In the first place, we consider it necessary to use fascia in these repairs. Probably everybody has had, even with careful technique, a refracture from violence insufficient to satisfy one's conscience.

We try to repair the fracture in the usual standard manner, without wire or other metallic foreign body, striving to approximate the bone, and carefully cleaning up and suturing the aponeurosis. A strip of fascia about 1½ to 2 in. wide is then taken from the thigh and attached to the quadriceps tendon for a distance of 1½ inches above the patella. It is also attached to the patella tendon for the same distance below the patella. The edges are sutured with interrupted fine, plain catgut to the tendon and to the periosteum of the patella. We have, in two cases, cut the quadriceps and patella tendons obliquely for a short distance, and inserted the ends of the fascial strips; this technique has been abandoned, however, because no increase of adhesive properties seemed to be obtained.

We have liked the principle involved in this operation better than the use of the fascia as a running suture; with the tremendous strength of the quadriceps, it seems to us that there is danger of the fascial sutures tearing out the sides of the drill-holes in the bone if good bony union of the fracture does not occur. The use of a wide and long strip of fascia gives a larger area of adhesion, and a consequent increase in strength. It takes a few more minutes' time; the technique, however, is simple and the satisfaction to the conscience in having this reinforcement is great.

We used it first in 1926 in three cases. All had been operated on, three, eight and nine months previously, and had refractured. We are now using this method in all fractures of the patella, and have employed it in one fracture of the olecranon. There have been no recurrences in the cases done four years ago, and all the patients operated upon at that time are back at work with free use of the knee. The patients operated upon subsequent to 1926 have had no complications or set-backs.

We agree with other men who have reported the additional advantage of an early return to function, and consequent shortening of a workman's disability.

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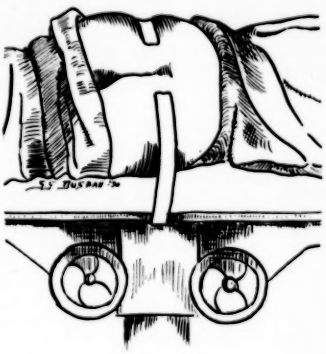
SEPARATION OF NATES BY ADHESIVE PLASTER DURING OPERATIONS FOR PILO-NIDAL CYST OR SINUS

BY CARL BEARSE, M.D.*

THE operation for pilo-nidal cyst or sinus is greatly facilitated by the obliteration of the natal cleft with the resulting flattening out of this region. This is usually done by an assistant who, either with his hands or instruments, pulls the buttocks apart. It will be found that such assistance is unnecessary if strips of adhesive plaster are used as shown in the accompanying illustration. The strips are from two to three inches in width and are long enough so that they can be fastened to the operating room table. They are placed far enough up on the buttocks to insure firm adhesion but should not encroach too closely on the operative field. After the cyst or sinus has been excised and to aid skin apposition, the adhesive plaster is cut from its attachment to the table. The adhesive strips are completely removed from the skin after the completion of the operation and the application of a dressing.



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RESULTS OF THE OPERATION OF THE STANDARD MILK ORDINANCE

During the past seven years the United States Public Health Service has been engaged in studies relating to milk sanitation. These studies had their beginning in response to a request from a State Health Department to formulate and assist in beginning the execution of a State-wide plan of milk control. The plan which has been developed by the United States Public Health Service has been so successful in improving the quality and in increasing the consumption of milk in the State in which it was first used that nearby States, one after another, have adopted the plan and called upon the Public Health Service for assistance until now some 375 cities located in over 20 States have adopted the program.

The results of the milk sanitation program in the State of Mississippi are of interest. The results so far obtaining in that State after two years' experience with the standard milk ordinance are as follows:

There are now 26 cities, containing over 75 per cent. of the State's urban population, enjoying a high-grade protection of their milk supplies, as against six cities formerly. The improvement in sanitary quality has been quite satisfactory; the retail raw milk has improved 91 per cent., the raw milk delivered to pasteurization plants 89 per cent., and the pasteurization plants 109 per cent. Milk consumption has increased 23 per cent. The number of cities having pasteurized milk has doubled, and the consumption of pasteurized milk has risen 117 per cent.—*United States Public Health Service.*

MEDICAL PROGRESS

PROGRESS IN LARYNGOLOGY

BY GORDON BERRY, M.D.,* AND LE ROY A. SCHALL, M.D.*

BACTERIOLOGY

CULTURES made from the interior of tonsils and adenoids removed at operation in 100 selected cases were studied by Polvogt and Crowe[1]. Patients with repeated attacks of tonsillitis were selected for this study. More than 50% were children less than 11 years of age. The hemolytic streptococcus was the predominating organism grown in 91% and the staphylococcus in 8 per cent. More than 50% of the patients from whose tonsils a hemolytic streptococcus was grown in pure culture were children under 11 years of age. In 81 cases the streptococcus hemolyticus was the predominating organism in both the tonsils and adenoids. In 8 there was a heavy growth of staphylococcus from the adenoid culture and a pure culture of streptococcus from the tonsils. From this study they conclude that a swab culture is a fair index to the organisms deeper in the crypts.

A study made by Kneeland[2] of the nose and throat flora of infants disclosed that the upper respiratory tract is sterile at birth. In the first two weeks of life the infant acquires a basal flora comparable to that of adults, except that the potential pathogens are absent. During the ensuing months the potential pathogens may appear without giving rise to symptoms and by 8 months the infant's flora is entirely comparable to that of the adult. There is no evidence of a specific bacterial incitant for the first colds of infancy. Infants with recurrent colds, secondary infection of the nose with pneumococcus or B. pfeifferi probably plays a part.

Pfeiffer[3] describes a micrococcus which has been repeatedly isolated and studied during the last five years, in connection with investigations regarding the significance of bacteria in the etiology of acute rhinitis. This organism is differentiated from other cocci commonly found in the nasopharynx by cultural methods and serologic tests. The inoculation of freshly isolated strains of this organism into the nasal cavities of suitable subjects produced the typical clinical symptoms of acute rhinitis. In these cases a coccus biologically identical with the inoculated coccus was recovered from the discharges, so long as symptoms persisted and for some time afterwards. Serologic tests were carried out on the strains from patients, which corresponded in every instance with the strains inoculated. Complement fixation has been positive in high dilution with the serum of all human beings tested. In experimental animals, specific antibodies are produced.

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From studies on a special chocolate agar media, Tunnicliff[4] concludes that streptococci of scarlet fever, erysipelas and septic sore throat are distinct organisms. Hemolytic streptococci from typical cases of erysipelas produce a bright green on chocolate agar after 24 to 48 hours growth, while those from scarlet fever cause no growth or occasionally a slight greening of the medium after several days' growth. On chocolate agar, typical colonies of streptococci from scarlet fever are slightly granular and conical, and from erysipelas smooth and convex, while those from septic sore throat are very rough, indented, conical or convex and gun metal in color, with occasional blister-like tops.

Castellani[5] has discovered that fetor oris of tonsillar origin is always associated with the presence of two bacilli for which he proposes the names Bacillus colofoetidus and Bacillus alkalofoetidus.

Rocchi[6] reports that repeated attempts to transmit epidemic parotitis by inoculating into the testis of rabbits fluid from a human testis affected with the characteristic lesion resulted negatively. Likewise, the inoculation into the peritoneum of guinea pigs of blood taken from patients with parotitis at the height of the disease was negative. Catheterization of the parotid duct, in more than 250 cases, revealed that the parotid secretion in epidemic parotitis was profoundly altered.

Tonsillitis caused by the gonococcus is exceedingly rare. Foster[7] gives an interesting case report. Six weeks after the original Neisserian infection, the patient developed a sore throat with a patch on the left tonsil from which smears and cultures showed the gonococcus.

EFFECTS OF TONSILLECTOMY

On Diphtheria Immunity

Tonsillectomy has been advocated not only to relieve symptoms referable to diseased tonsils themselves, but also as a means of protection against subsequent infections. Schick and Topper[8] have made the Schick test on every child who came to the hospital for tonsillectomy. They found a fairly large number of children who showed a positive reaction to the diphtheria test before tonsillectomy. Six months after tonsillectomy, 100 children were retested. In 18 children the reaction still remained positive, and in 82 the results were negative; in 11 of the 61 younger children (6 years of age or less) the reaction remained positive, while in 50 it became negative; in 7 of the 39 older children (more than 6 years of age) the reaction remained positive, while in 32 it became negative. The authors do not advocate indiscriminate ton-

sillectomy. They are still emphatically in favor of immunization by toxin-antitoxin. However, there are two practical applications to be considered: (1) the recommendation of tonsillectomy in place of immunization with toxin-antitoxin for children with diseased tonsils who are sensitive to horse serum; (2) the recommendation for testing children who have been tonsillectomized six months or more previously before immunizing with toxin-antitoxin.

In Prevention and Treatment of Rheumatism

Findlay[9] et al. conclude that a preliminary tonsillectomy may possibly render an individual less susceptible to rheumatic arthritis but not to chorea. A preliminary tonsillectomy or one performed early during the course of the infection may possibly, in the case of arthritis, render the heart less liable to be attacked but not so in the case of chorea. As, however, cardiac complications usually ensue during the first or second rheumatic manifestations, the operation to be prophylactic, must be performed before the second attack.

AGRANULOCYTOSIS

Spengler[10] points out that since the symptomatology of agranulocytosis has become better known, various treatments have been attempted. However, the therapeutic measures were successful only in a small number of cases, so that the prognosis in agranulocytosis seems unfavorable. The author reports the cases of two patients who recovered without treatment. He emphasizes that since agranulocytosis is usually a grave condition, all therapeutic measures should be attempted, particularly blood transfusions and radiation therapy.

Blanton[11], likewise reports a recovery from agranulocytic angina. His patient was a male of sixty years, with sore throat and pain upon swallowing, and the typical blood picture of agranulocytosis.

Hutcheson[12], asserts that there is no agreement among writers that the throat picture is an essential part of the agranulocytosis or that it bears any relation to the fever and blood reaction. The fact that it appears very often after fever and blood changes are well established would indicate that it is secondary, and this view is held by a number of observers. The most striking feature of Hutcheson's two cases that recovered was the prompt rise of leukocytes, chiefly in granular cells, which occurred with the crisis-like fall in temperature.

To remind us that the mucous membrane ulceration, in agranulocytosis, may occur in any of the mucous membranes, Otto[13] reports a case with ulceration of the posterior wall of the vagina. Microscopic examination of the ulcer postmortem revealed deep necrosis with complete cellular disintegration.

Although the etiology of agranulocytic angina is entirely unknown, Bromberg and Murphy[14] report a case occurring so directly after prophylactic injections of typhoid vaccine as to suggest that this may have been the toxic agent that excited the clinical manifestations. The patient, a woman of 50, six hours after the first typhoid inoculation, had a severe constitutional reaction characterized by malaise and fever which lasted for two days. After the second injection the patient developed the characteristic picture, confirmed by laboratory observations of agranulocytic angina. Death occurred on the twentieth day after the first inoculation and eight days after the development of the sore throat.

SEPTIC SORE THROAT

A clear picture of epidemic sore throat is given by Holmes[15] after her study of the Lee epidemic. Her description is quoted verbatim: "The clinical picture of the disease in children was unlike that in adults. The children were usually only mildly ill and seemed to have either follicular tonsillitis or scarlet fever. In adults the disease was characterized by sudden onset of the usual symptoms of an acute infection—headache, malaise, fever, chills, bone aches and prostration. Sore throat was present at the onset of about 90 per cent. of the cases. There was one peculiarity of the early throat symptoms which has not been mentioned by previous observers. This was a severe boring pain beginning inside the larynx. Sometimes this was the first symptom observed and usually accompanied by a spasm of the throat, making swallowing difficult, coming on suddenly and without provocation, and sometimes awaking the patient from sleep.

The buccal and pharyngeal cavities presented a picture of intense edema, unaccompanied by membranes or ulcerations. In the moderately sick individuals, this edema was confined to the palate, but in the more severe cases the pharynx and larynx were also involved. In examining the throat, one saw a glistening, glary palate, usually intensely red; but the redness was not as sharply circumscribed as in scarlet fever. The uvula was round like a marble. In only one case was the tongue involved. The tonsils were seldom much enlarged unless there was a pre-existing chronic enlargement, but as the anterior and posterior pillars of the palate became engorged the tonsils were pushed forward, giving a false impression not only of tonsillar enlargement but also frequently of a peritonsillar abscess.

The pharynx also showed the same glistening, glary appearance. The epiglottis was large and round. Accompanying the oedema of the throat there was marked swelling of the tissues of the neck. In some instances this gave a bull neck appearance. Enlargement of the cervical glands was not universal nor was it proportionate to the throat involvement. Resolution of the adenitis was very slow."

Riskin[16], writing on the relation between scarlet fever and streptococcus sore throat, asserts that it is now almost generally accepted that a streptococcus is the pathogenic microörganism of scarlet fever. He also points out that scarlet fever is not only generally accompanied by sore throat but, in some instances in which the exanthem does not develop, it shows almost the same aspects as streptococcus sore throat. Therefore, the author investigated the correlation between scarlet fever and streptococcus sore throat during a scarlet fever epidemic. Two hundred and twenty-two nurses who came in contact with scarlet fever patients were kept under observation. Eighty-seven of them contracted sore throat. The length of the incubation period in streptococcus tonsillitis was about the same as in scarlet fever. In classifying the various types of tonsillitis it was found that catarrhal and lacunar forms were most frequent. Follicular tonsillitis occurred only once. The Dick test was performed on 91 nurses. It was observed that persons with a negative reaction may still contract streptococcus sore throat. Of the eighty-seven patients with sore throat seven developed catarrhal or suppurative otitis. Hemolytic streptococci were found on smears from both those with and without sore throat.

LABORATORY AIDS

In an exhaustive, thorough and complete paper, Conner[17] discusses the laboratory aids in ear, nose and throat conditions. Under the headings: Blood Counts; Blood Sedimentation; Blood Dyscrasias; Bacteriology of the Blood; Blood Chemistry; Bleeding and Coagulation Time; Wassermann; Cerebrospinal Fluid; Bacteriology; and Pathology, he discusses the aid of the normal and abnormal findings as seen in ear, nose and throat diseases.

From an analysis of the case records of the Toronto General Hospital, in those dealing with altered blood states, in which otolaryngology has a part, Goldsmith and McGregor[18], group them (1) in which bleeding was a prominent factor; (2) a group in which glandular enlargement predominated the picture; and (3) an anaemic group. The authors discuss these three groups that frequently consult the otolaryngologist, and the laboratory methods that will reveal the underlying pathology.

NASAL MUCOSA

Fox[19] asserts that when menthol is applied to the nasal mucosa of a rabbit for nine months in dilution as low as 1%, it causes some degenerative changes. When applied in 5% dilution it causes definite degenerative changes in all layers of the nasal membrane. Five per cent. eucalyptol and five per cent. camphor have some deleterious effect on the nasal mucosa of a rabbit when used daily for nine months. Liquid petrolatum apparently also exerts a deleterious effect when used for the same length of time.

The widespread use of chromium plating in industry has caused an increasingly large number of these workers to be deeply and irreparably branded. Chromium plating is accomplished by immersing the object to be plated in an electrolytic vat containing among other elements, chromic acid. Dixon[20] reports 18 cases of perforation of the nasal septum among chromium plating workers. He finds that the chromic acid affects the nose of these workers by causing an inflammation of the mucous membrane with ulceration of the septum, which may later lead to perforation. By proper ventilation of the tanks and rooms, irritation from the chromic acid can be avoided.

PARANASAL SINUSES, ANATOMY, PATHOLOGY AND TREATMENT

In a symposium on the ethmoid, Mosher[21] dealt with the surgical anatomy; Skillern[22], the pathology and diagnosis; Iglauer[23], the conservative treatment; Fenton[24], the radical intranasal measures; and Lynch[25], the radical external operations on the ethmoidal labyrinth. This symposium is a monogram, worthy of careful study by every otolaryngologist.

One of the most serious complications that can follow an operation of the frontal sinus is osteomyelitis of the frontal bone. For example, Killian performed his operation on 86 cases without accident, but lost three, one after the other, before his hundred were completed. To avoid this complication, Tilley[26] is convinced that before operation on the frontal sinus we should see that there is no untreated sepsis in any of the other sinuses, and especially of the antrum and the ethmoidal cells.

Skillern[27] agrees that there are two types of the disease: one occurs spontaneously and takes a slow course showing a tendency to self-limitation; the other follows traumatism such as operative measures and is characterized by its steady and relentless progress.

Both Tilley and Skillern agree as to treatment, Tilley stating: "When once recurrent suppuration takes place in the wound and an area of pale, putty-like edema appears in the soft tissues overlying the neighborhood of (generally) the upper limits of the sinus, there must be no delay in making a free exposure of the frontal bone from the eminence to the affected sinus. Free removal of the whole thickness must be made with freshly sterilized instruments, and commencing from above downward, i.e., from healthy towards inflamed and infected bone. Only by such drastic measures have a few threatened lives been saved."

Dean[28] restates his work on sinus infection in children, emphasizing that poor ventilation, lack of sunshine and improper clothing may lead to systemic disturbances which predispose to infection of the nasal sinuses. Allergy and neph-

rosis, by producing a water-logged mucous membrane, are most important etiological factors. Dean urges both pediatric and laryngologic treatment of these children. Proper diet must be subscribed; ventilation of the home and the influence of climate must be considered; clothing must be regulated; allergy, if present, must be controlled. Most laryngologists will agree with Dean when he states that "operations on the nasal sinuses of children other than meatal drainage of the maxillary sinuses are rarely indicated."

Vaile[29] calls attention to the chronic head colds affecting so many children. The roentgen examination in all cases seen by him showed clouding of both antrums; some cases showed evidence of polypoid change and thickening of the mucous membrane. No cases of involvement of the frontal or sphenoid sinuses were found and a few instances of ethmoiditis.

Anderson[30] reviews 400 cases and comes to the conclusion that sinusitis is not a factor in focal infection. He finds that teeth, tonsils, the prostate gland and other foci are of more importance. In a patient with a normal nose on clinical examination, and with a history negative for diseases that can be referred to the nose, any exploration which involved mutilation of the nasal membranes is not justified. Unnecessary trauma reduces the resistance of the membrane and may introduce infection. Toxins are absorbed by the blood stream, but bacteria are rarely transmitted to distant parts of the body from the paranasal sinuses. Existing infections of the nose and paranasal sinuses should be treated in the most conservative manner consistent with the complete eradication of the disease.

From their studies with Vitamin A deficiency diets, Shurly and Turner[31], come to the conclusion that organisms isolated from the suppurations of the upper respiratory tract and middle ear in albino rats suffering from lack of Vitamin A, morphologically appearing as gram-negative cocci and classified as such by their fermentative powers, may produce a fatal toxemia in rabbits. From the observations made it appears that the poisonous effect is produced by an endotoxin and not by a toxic substance secreted by the organism.

IN RELATION TO ASTHMA

From a recent review and follow-up of 1074 patients with asthma, Rackemann and Tobey[32] come to the conclusion that: (1) Patients with asthma give a history of previous operations on the nose and throat in 28%, and without regard to the cause of asthma found. (2) Examination shows a true infection in the nose, throat and teeth in 44% of all cases, while vasomotor rhinitis occurs in 14%. There are more patients with a focus in the intrinsic than in the extrinsic group—as expected. (3) The presence of foci bears very little relation to the outcome of the asthma. (4) The gross results of treatment of foci are disappointing as shown by comparison of patients in each group with foci operated and not operated, and by analysis of the different lesions treated. However, (5) local treatment of the nose, throat and teeth has brought about an apparent permanent relief in 5% of the cases. (6) It is suggested that local nose and throat lesions may develop from the same fundamental cause as the asthma itself.

In an exhaustive and scientific article Hansel[33] concludes that (1) It is generally believed that the vasomotor nasal reactions occurring in hay fever, vasomotor or hyperesthetic rhinitis and bronchial asthma may be considered as manifestations of human hypersensitiveness. (2) The histopathologic changes occurring in the nose and sinuses in allergy are: In the epithelium — thickening, hyperplasia and polypoid degeneration. In the tunica propria—eosinophilic infiltration, edema and varying amounts of mononuclear-celled, round-celled and lymphoid-celled infiltration and connective tissue infiltration; dilatation, compression and atrophy of glands; dilatation thickening and compression of blood vessels. In the periosteal layer—round-celled and connective tissue proliferation. In the bone—hyperplastic and rarefying or atrophic processes. Gross polypus formations appear in the nose and sinuses.

(3) Eosinophilic infiltration in the mucous membrane of the nose and sinuses and the occurrence of eosinophiles in the nasal secretions and in the blood are indicative of allergy, just as the appearance of eosinophiles in the blood, sputum and bronchial structures is indicative of the existence of allergy in bronchial asthma.

(4) The nose should be examined in every case suspected of allergy. The nasal findings may be a valuable adjunct in making the diagnosis.

(5) The histopathologic changes in the nose and sinus in allergy are similar in every respect to those which occur in the bronchial structures in bronchial asthma.

(6) The part played by bacteria as etiologic factors in nasal allergy has not been proved, and the general consensus is that bacteria are secondary invaders.

PHARYNX

In 1885, Tornwaldt, of Danzig, published a series of clinical observations in which he declared that he had seen numerous cases of abscess formation in the region of the recessus medius. These abscesses varied in size from one to two millimeters to several centimeters. Because the abscesses were situated where the pharyngeal bursa originated, Tornwaldt concluded that these cases were all cases of pharyngeal bursitis. From a study of the clinical reports of Tornwaldt's cases, Yankauer[34] disagrees that they are due to an infection of the pharyngeal bursa but claims they are due to an

infection of the recessus medius of the adenoid. The symptoms of inflammation of the recessus medius, according to Yankauer's observation of 155 cases are: (1) a group due to an open abscess discharging into the nasopharynx: postnasal discharge, frequent colds, foul taste, odor, etc. (2) Symptoms due to a closed abscess: headache located at the nape of the neck just below the occipital bone, nasal obstruction, sore throat, etc. (3) Symptoms referable to the ear: earache, vertigo, tinnitus, etc. The diagnosis rests on a very careful examination of the nasopharynx by direct vision. These abscesses are superficial, in the adenoid, and are easily opened. When the pharyngeal bursa is infected, being as it is back of the mucous membrane of the pharynx, the bursa can only be opened by an incision.

Watson-Williams[35] presents seven cases as evidence that pharyngeal abscess resembles in its clinical features peritonsillar abscess; the most striking difference is the absence in the former of edema of the palatal mucosa. The condition should be suspected when a "quinsy" appears to run an anomalous course, or when incision in the usual site above the tonsil fails to locate pus. The abscess tends to point low in the side of the pharynx behind the posterior faucial pillar; it is easily opened here by slight pressure with a blunt instrument, which alone is permissible.

Carmack[36] believes that the possibility of aberrant carotid arteries has not been sufficiently emphasized in medical literature. The majority of textbooks on otolaryngology minimize the possibility of danger from injury to the large cervical arteries through surgical procedures in the throat and pharynx. Carmack reports personal knowledge of five cases in which death occurred from hemorrhage at the time of or shortly after a surgical operation on the throat. From both a surgical and a medico-legal aspect, the knowledge of aberrant carotids should be emphasized.

NECK SURGERY

For his Presidential Address before the American Academy of Ophthalmology and Otolaryngology, Mosher[37] chose as his subject "The Submaxillary Approach to Deep Pus in the Neck." Reviewing the anatomy of the neck, Mosher states that the landmarks which have served him best are: in the mid line, the cricoid cartilage; on the side of the neck, the tip of the great horn of the hyoid bone; high in the neck and deep, the styloid process; and of the muscular landmarks, below the hyoid bone, the anterior edge of the sternomastoid muscle; above the hyoid, the posterior belly of the digastric. A generous "T" shaped incision, the top of the "T" parallel to and beneath the ramus of the jaw, will expose the submaxillary gland and permit it to be turned upward out of its bed. The facial vein runs across the middle of the field and must be tied and cut. The facial artery is turned up with the gland. The hypoglossal nerve is superficial and just above the "V" made by the tendons of the two bellies of the digastric. The carotid sheath lies opposite the tip of the great horn of the hyoid. In searching for pus the submaxillary gland is kept up out of the way. The surgeon's finger then follows the carotid sheath upward or downward. Upward, the finger enters the pharyngo-maxillary fossa and passes to the outside of the tonsil. Carrying the finger to the outside of the styloid process the base of the skull can be reached. In dealing with pus in the floor of the mouth or in the base of the tongue an incision in the center of the floor of the submaxillary fossa can be carried forward or backward as indicated, bringing the whole of the floor of the mouth and base of the tongue within reach.

After reviewing the anatomy and symptomatology of infection of the submaxillary gland, Garland and Lurie[38] state that in chronic submaxillary infection, total removal of the gland offers the best and surest means of cure.

MEDIASTINAL ABSCESS

Acute suppurations of the mediastinum are well recognized complications of descending neck infections. Although there are but few cases reported in the literature, it is definitely known that an inflammatory process originating in the cervical region may terminate in a mediastinal abscess. Furstenberg[39] reviews the literature and the anatomy of the cervical fascia. Two methods have been described for draining a mediastinal abscess. First; dorsal mediastinotomy in which the thoracic cavity is opened posteriorly by resection of ribs or by removal of one or more transverse processes with a portion of the attached rib. Second, cervical mediastinotomy in which the posterior mediastinum is reached through the lower cervical region. Furstenberg reports two cases of cervical mediastinotomy for descending neck infection, with one recovery.

LARYNGEAL CANCER

Lewis[40] combines deep x-ray therapy and radium both preoperatively and postoperatively with surgery in the treatment of extrinsic cancer of the larynx. Seemingly hopeless cases have been rendered safe risks by the preoperative exposure to radium and x-ray, although these agents make the operation more difficult and following the operation, marked sloughing of the tissues is apt to occur. Lewis reports 41% apparent cures in 55 cases of total laryngectomy. Of those who died, none had the preoperative exposure to radium or x-ray.

Recognition of the fact that carcinoma of the larynx may occur early in life is of great importance from the standpoint of diagnosis and treatment. Figi and New[41] report that in a group of more than 380 cases of carcinoma of

the larynx seen at the Mayo Clinic, more than 84% occurred in patients between forty and seventy years, 9% occurred in patients between seventy and eighty years, and 5% in patients aged less than forty years. The authors give a detailed report of two cases, one a boy of 15 and the other a girl of 24 years of age. A total laryngectomy was performed in both cases with complete recovery.

Mackenty[42] writes: "If the public mind could be oriented on one fact—that progressive hoarseness is a danger signal—and if the medical profession would urge a thorough and competent investigation of this danger signal, if the entire truth were told about radium and if the laryngologist would heed the dictates of general surgical measures in the treatment of persons with cancer, i.e., radical removal, laryngologists would be doing their honest best with their allotted 5% share of patients with this dire disease and would eradicate to a large extent the unspeakable misery attendant on uncontrolled laryngeal cancer."

Following practically the same principles of his two-stage laryngectomy, New[43] proposes a two-stage thyrotomy in cases considered bad surgical risks. Under local anesthesia a mid-line incision is made, the hyoid bone divided, the larynx partially skeletonized and the skin closed. In a few days the wound is infected by making a small opening into the cricothyroid membrane or by removing a disk from the cricoid cartilage. About four days later the second stage is done. Under block paravertebral anesthesia, the wound is freed by means of the index finger and the divided ends of the hyoid bone retracted. Small sharp-pointed forceps pick up the upper end of the thyroid cartilage and it is divided by means of a saw. The cricoid cartilage is partially divided in the mid-line to give better exposure. The laryngeal growth is removed by dissection or by diathermia. Bleeding is controlled by catgut sutures and the thyrohyoid membrane is approximated and the muscles sutured, anteriorly, to the thyroid cartilage. A split rubber tube is placed at the lower end of the wound down to the thyroid cartilage and left in place forty-eight hours in order to avoid surgical emphysema.

A case of multiple carcinomas of the larynx and of the esophagus, proved by biopsy and pathologic study, is reported by Wilbur[44].

Halberstaedter and Seiffert[45] have used Ledoux's method (intratumoral application of radium needles through an incision in the thyroid cartilage) in the treatment of more than twenty patients with cancer of the larynx. In all of them the functional results were extremely satisfactory. In the cases of cancer of the vocal cord it was impossible to tell after treatment which vocal cord had been involved.

ABSCESS OF THE LUNG

Reviewing the year's work in endoscopy, Johnson[46] reports four acute lung abscesses cured by bronchoscopy. Very sanely he writes: "Just what step, or steps, in bronchoscopy are really responsible for the benefits derived, is still a matter of conjecture. It hardly seems reasonable to believe that bronchial aspiration may effect this end, when one considers that a patient may cough up after bronchoscopy more pus than is aspirated at the time of bronchoscopy. Nor does it appear reasonable that topical applications to the inflamed mucous membrane can produce so drastic a change. It does, however, seem possible that the mere passage of the bronchoscope may dilate the dependent bronchus or bronchi and thus more adequately drain the infected area in the same way that dilatation of a ureter is helpful in the treatment of pyelitis."

Experimental evidence is presented by Holman and Mathes[47] indicating that infected emboli invariably produce marked pathological changes in the parenchyma of the lung. Sterile emboli, on the other hand, usually produce little gross evidence of their presence in the deflated state of the lung. Sterile emboli may produce hemorrhagic infarctions and abscess formations as the result of secondary infections of the embolic area by circulating organisms. Observations in the laboratory indicate that in the presence of suppurating wounds a sterile embolus lodged in the lung may produce an intrapulmonary abscess as the result of a secondary infection of the embolic area by circulating organisms.

Attention is called by van Allen et al.[48] to the fact that a large group of postoperative abscesses of the lungs exists which is not explained as to etiology either by embolic or bronchogenic inoculation, acting alone. The effect of a combination of these two avenues of inoculation of the lungs was tested experimentally. It was found that embolic abscesses of the lung could be enhanced in virulence and in chronicity by the insufflation of infectious material into the bronchi. This combination of embolic and bronchogenic inoculation may explain the pathogenesis of the obscure group of postoperative abscesses of the lung. Superinoculation by aspiration of pharyngeal secretions may be responsible chiefly for the maintenance of chronic abscesses of the lung, both postoperative and postpneumonic, and for recrudescences in bronchiectasis.

Pus from 118 pulmonary abscesses was studied bacteriologically by Bucher[49]. Streptococci were most commonly found in these cultures. Staphylococci, pneumococci, bacillus influenzae, fusiform bacilli, spirochetes, various anaerobes and other organisms, some unidentified, were also recovered. It is concluded that the organisms found in pulmonary abscesses are similar, for the most part, to those found in the mouth and upper respiratory tract.

PRIMARY BRONCHIAL MALIGNANCY

Miller and Jones[50] discuss the clinical aspects of primary carcinoma of the lung, or primary

bronchial carcinoma, as they would term it, and report thirty-two definitely substantiated cases of their own in which the diagnosis was confirmed by either bronchoscopic or post mortem examination. Cough and weakness were the most common symptoms (30 cases); anorexia was next in frequency (26 cases); then loss of weight (25 cases); fever (24 cases); dyspnea (21 cases); and hemoptysis and pain in the chest (20 cases).

Hodge[51] urges that all patients in the cancer age having obscure pulmonary symptoms, whose cause has not been determined by roentgen and clinical examination, should have a bronchoscopic examination.

Serra[52] asserts that the incidence of primary malignant tumors of the lungs has been increasing of late years. Carcinomas are much more frequent, sarcomas much more rare, and of the sarcomas, those with the fusiform cells are the most common. Males are affected more than females. All ages are affected. There are no pathognomonic clinical signs for the diagnosis of tumors of the lung. Nor are there any clinical signs for the diagnosis of the carcinomatous or sarcomatous nature of the neoplastic process. The objective examination is fortified by cytologic, roentgen and, if possible, bronchoscopic examination.

PRIMARY BRONCHIAL CARCINOMA: INTRACRANIAL METASTASES

Metastases to the central nervous system were found by Fried and Buckley[53] in fifteen of thirty patients with bronchogenic carcinoma. For eleven of the fifteen patients a diagnosis of primary tumor of the brain was made, and the bronchogenic tumor was overlooked. For the remaining four patients a definite diagnosis could not be made. An intracranial operation was performed on eleven of the patients and a metastatic tumor was removed in ten instances. Apparently the pulmonary tumor metastasizes to the brain by way of the blood stream.

Nine cases of primary lung tumor with metastases giving rise to cerebrospinal symptoms are reported by Ferguson and Rees[54].

THE ESOPHAGUS

Two major anatomical facts are brought out by Mosher[55] in "The Semon Lecture for 1929." First, the esophagus comes to a point at the edge of the left crus, then changes its axis and is confined within the crura until it reaches the stomach. This anatomical formation explains the barium picture of the lower end of the esophagus and locates the point of physiological closure on inspiration.

Second, forced inspiration causes a more complete closure of the crural angle and the point of closure of the esophagus jumps upward a quarter to a half an inch, giving the impression that much of the esophagus is suddenly amputated.

The major clinical conclusions are: As a result of an infection transferred from adjacent glands the various components of the esophageal wall may show at birth a localized or generalized hypertrophy; ulcer of the esophagus may occur at or before birth; pouch of the fundus of the stomach is found at birth; infection about the lower end of the esophagus can cause a gluing of the fundus of the stomach to the esophagus and an invagination of the esophagus into the stomach; segmentation is occasionally found in the muscles at the lower end of the esophagus making the esophagus at this point structurally weak. Twenty-five cases of cardiospasm show a crural crease in the esophagus. The author believes that the crease is due to fibrosis of the connective tissue in the crural ring associated with a fibrosis of some of the muscle bundles of the crura. It is the result of infection transferred from neighboring organs. The fibrosis of the crural ring is best dilated under fluoroscopic vision. The barium striped bag under manometer control is very efficient for this purpose.

ESOPHAGEAL DIVERTICULA

Sturgeon[56] reviews the literature and the anatomy of diverticula of the esophagus and reports eight cases. The treatment is surgical, usually under local anesthesia. Whether one performs the one or two-stage operation, the technique of freeing the sac is the same. The skin incision, including the platysma, is made along the anterior border of the sternomastoid from just above the level of the cricoid cartilage down to the clavicle. The sternomastoid is retracted outward and the deep cervical fascia is divided parallel with the skin incision. The middle thyroid vein, if present, is ligated before any attempt is made to expose the thyroid gland. The omohyoid muscle is divided, the thyroid gland rotated inward, the esophagus is then seen as a flat fold pressed against the vertebra. The sac is freed by dissection. In the one stage operation the neck of the sac is transfixed with a fine needle and No. 1 iodized catgut. The sac is then cut away. Three interrupted sutures are now placed, each suture picking up the muscular coat of the esophagus. These sutures cause inversion of the stump. The incision in the neck is closed in layers. A Rehfuss tube is passed and left in situ for ten or fifteen days. In the two-stage operation, after the sac is freed, it is sewed to the sternomastoid. The skin is closed around it, and left in this position from eight to twelve days at which time the second operation is performed. The neck of the sac is again freed, either a purse string or a transfixing suture is used to tie it off, and the sac is excised. A few interrupted sutures are used to reinforce the esophagus. A small fistula usually forms, although it heals completely in a short time.

DISEASES OF THE ESOPHAGUS

Of the various ulcerative lesions of the esophagus one kind has been termed "peptic" because of the close similarity of its postmortem aspect to peptic ulcer of the stomach. Jackson[57] reviews his eighty-eight cases and from this study suggests focal infection as the chief etiological factor, with the tonsils as the most frequent site of the focus. Islands of gastric mucosa are accessory causes. Retrograde flow of gastric juice may or may not be a perpetuating etiological factor, but it is a cause of pain. Jackson states that the most characteristic symptom of peptic ulcer of the esophagus is retrosternal pain or discomfort extending through to the back. The diagnosis can be made with a certainty only with the esophagoscope. The best treatment is the eradication of the focal infection, plus the local esophagoscopic application of argentic nitrate, or bismuth subnitrate.

Guisez[58] considers that the retention of imperfectly masticated food in the esophagus is the main cause of inflammation of its wall. Other factors favoring local irritation are common table salt, pepper and other spices, and to a great extent alcohol. Incomplete stricture of the esophagus may be congenital or caused by compression due to neoplasms or hypertrophy of the liver. In either case it may lead to the development of esophagitis. It is difficult to diagnose the condition roentgenologically and esophagoscopy is the best method for early recognition of the inflammation, which according to Guisez is of more frequent occurrence than has been thought heretofore.

The usual methods of roentgen examination of the esophagus being often insufficient to detect small new growths, Hickey[59] proposes the use of soft gelatin bougies containing barium. Ordinary cooking gelatin is allowed to soak in cold water until it swells fully, after which it is rendered fluid by heating. Barium paste is then added, stirred and allowed to cool. Plugs varying in size from 8 to 16 mm. in diameter and 3 to 4 cm. long are cut from the gelatin. The patient is then studied with the fluoroscope as he swallows with the aid of water these gelatin bougies. If one is lodged the heat of the body will cause it to soften and pass to the stomach. These barium-gelatin bougies are easily swallowed by the patient, and they have been a distinct advantage to determine slight projections into the esophageal lumen.

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NEWS ABOUT THE MASSACHUSETTS DEPARTMENT OF PUBLIC WELFARE

EXHIBIT OF STATE ACTIVITIES, SEPTEMBER 27 TO OCTOBER 11

At the State Activities Exhibit at Commonwealth Armory the work of the department is displayed in scenes which center around a real house and garden. Four groups of wax figures enact the reception of children in foster homes, an aged couple and visitor, a mothers' aid family and visitor and a ward at the State Infirmary.

OLD AGE ASSISTANCE

Chapter 402 of 1930 requires local boards of public welfare to give adequate assistance to deserving citizens in need seventy years of age or over. The department is holding conferences preparatory to the adoption of rules, policies and instructions which will be issued later. Local boards must, under the law, establish a division designated Bureau of Old Age Assistance and should secure appropriations for assistance to begin July 1, 1931 and for visitors.

TRAINING COURSES

The Training Course in Public Welfare for social workers will be given for the fourth year at the State House beginning October 27, at 3:30 P. M. The courses in Lowell and Fall River, January to April, were attended by about one hundred persons in each city. Circulars are available for other cities which may be interested to give such courses.

EDUCATION OF CRIPPLED CHILDREN

Chapter 369 of 1930 requires towns, in which there are five or more children so crippled as to make attendance at school not feasible, to employ a teacher for home instruction or other special instruction.

UNINCORPORATED TRUSTEES OF CHARITABLE TRUSTS

Chapter 209 of 1930 requires every unincorporated trustee of a charitable trust to make an annual report to this department. This law applies to all persons who hold in trust any funds or property raised, given or bequeathed for charitable purposes.

MASSACHUSETTS DEPARTMENT OF PUBLIC WELFARE,
Richard K. Conant, Commissioner,
37 State House, Boston.

OXYGEN ROOMS IN THE MICHAEL REESE HOSPITAL

Two oxygen rooms for the treatment of patients with pneumonia, heart decompensation, and other serious conditions have been opened at the Michael Reese Hospital at Chicago, it was announced recently by the board of trustees.

There are only six other rooms of this type in hospitals throughout the United States. They were made possible through the gift of $10,000 by a friend of the hospital.

The new rooms at the Michael Reese Hospital represent a departure from the usual type of construction. They are made of regular building materials instead of special materials used in other oxygen rooms now in existence, thus materially reducing the cost of installation.

The rooms are air-tight. They make it possible to introduce two or three times as much oxygen as is present in air under ordinary conditions and to maintain this increase in the amount of oxygen throughout the time a patient is in a room. The rooms can be charged with the maximum amount of oxygen needed in from three to five minutes.

One door is large enough so that a patient can be rolled into the room on his bed. The door then is closed and a small door which leads into an air lock is used for the entrance and exit of nurses and doctors.

Pneumonia patients, for example, who are in great need of oxygen and who consequently are restless, sleepless, and often turn blue because of the lack of oxygen, are put in these rooms. Usually there is an immediate return of normal red or pink color in the skin and lips. They become comfortable, breathe with less exertion, and often fall asleep. The same applies to many patients with heart failure.

Although the patient notices immediate relief in breathing the increased amount of oxygen, normal persons going into and out of the room are not aware of any difference in the atmosphere. Thus patients can be given complete nursing and medical care while they are in the oxygen rooms.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 16411

BLADDER IRRITATION

MEDICAL DEPARTMENT

An American seventy-five years old, formerly a tailor, entered February 20 complaining of inflammation of the bladder.

Five years before admission he began to have nocturia once at night, increasing during the past four years to twice and during the past year to three and four times a night. He had no pain or other symptoms. A year and a half before admission he stopped smoking because the taste was unpleasant and made him feel nauseated. His appetite, never large, had grown less; now all foods tasted alike to him. For the past four months he had had sensations of pins and needles and of numbness in his fingers. Since the first of January he had had six or seven attacks of nausea and vomiting after breakfast. Six weeks before admission he began to have a bearing down feeling in his bladder, urgency and frequency every two hours at night and every three to four hours during the day. The urine had been clear and light colored. For five weeks he had been nervous and jumpy. For four weeks he had had marked anorexia, constipation and "blind staggers" when he got up at night, passing off in a few minutes. For ten days he had had constant dull frontal headache, worse at night. For the past three nights he had slept very little because of frequency and headache.

The family history is not significant. His habits were good. He never drank to excess and had taken very little alcohol recently. He had not worked for eight years.

He had diphtheria and typhoid fever as a boy. He had cystitis twenty years before admission and again seven years before admission following trauma. He had been losing weight slowly for eight years and quite rapidly for the past four weeks.

Clinical examination showed a wiry, shriveled old man with foul breath and slight twitching. Apex impulse of the heart not seen or felt. Sounds faint, of poor quality. No murmurs. Left border of dullness 8 centimeters from midsternum, right border 2.5 centimeters to the right, supracardiac dullness 5. The distance of the midelavicular line from the midline is not recorded. Pulses normal. Artery walls markedly palpable and tortuous. Blood pressure 210/100 to 170/90. An electrocardiogram showed normal rhythm, rate 70, marked left axis deviation. Lungs and abdomen normal. Knee jerks hyperactive. Ankle jerks normal. The fundi showed arteriosclerosis. Tortuosity not well seen. No hemorrhages seen.

Residual urine February 22 one and one-half ounces, with some pus in the last few cubic centimeters. Later, urine 33 to 43 ounces, specific gravity 1.010 to 1.018, a trace to a large trace of albumin at all of six examinations, 10 to 80 leukocytes per high power field at all, 10 to 60 red cells at three, loaded at one. Renal function less than 5 per cent. Blood: 7,700 to 18.800 leukocytes, 55 to 65 per cent polynuclears, hemoglobin 60 to 65 per cent, reds 2,540,000 to 2,900,000, slight achromia in two smears, slight anisocytosis in one. Non-protein nitrogen 91 milligrams at admission, 100 February 23 to 25, 71 February 26, 107 February 28, 100 March 1. Creatinin 3 to 6 milligrams. CO_2 combining power 37.6 to 47.4 volumes per cent. Hinton negative. Vomitus: guaiac strongly positive February 23. Stools: guaiac negative.

Temperature 98° to 103.1°, pulse 60 to 111, respirations 29 to 14.

The day after admission the visiting physician found medium consonating râles at the right base.

The patient did not do well. Although he was given 160 to 200 ounces of fluid by means of clysis his output was only 35 ounces. February 25 he was given two intravenous injections of 500 cubic centimeters of two and one-half per cent sodium bicarbonate solution in addition to the subfascial glucose. February 23 and 25 he waked up three times with a sense of being breathless, sweating profusely, wheezing, cyanotic and shaking with chill for twenty minutes. There was a slight rise in pulse to 110 or 120 and a change in the chest râles to snores and squeaks. The heart sounds and blood pressure were unchanged.

The patient continued to fail, though the systolic blood pressure remained 190 to 200 and the heart sounds were regular. February 27 there was fluid at the right base and more edema of the legs. The blood CO_2 combining power that day was 47 volumes per cent. March 2 the legs were edematous to the hips. The patient was incontinent, took no fluids and had convulsive twitchings uncontrolled by morphia. A hemorrhage was seen in the right disc, but no choked margins. March 3 he died.

CLINICAL DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

There are no diseases peculiar to Americans. If we take the word "American" as meaning a

person born in a temperate climate, there are certain diseases which can be ruled out unless he has recently visited a foreign country.

The statement that he is seventy-five years old is entirely different. My experience in these exercises is that when a man dies at seventy-five or thereabouts there are very few diagnostic alternatives. In the whole medical field there are about 215 things one can die of singly or in groups; but there are only four or five things that one is at all likely to die of *after the seventieth year.* Ninety per cent of these people die of the following causes:

(1) Arterial disease, usually in the heart, brain, kidney,—one or more of these. We had better say arterial disease, not confining it to those three,—it might be in the mesentery or in some other out-of-the way place. By arterial disease we ordinarily mean arteriosclerosis or degenerative disease in the heart and kidney.

(2) Neoplasms.

(3) Terminal infections, such as pneumonia and streptococcus disease.

(4) Diseases connected with prostatic obstruction and urinary sepsis. By urinary sepsis I mean inflammation in any part of the urinary tract from the bladder to the kidney.

Those are the four things. I say to myself that this man probably died of some one of those four things or some complication of them. You will go right in ninety out of a hundred cases if you make that assumption.

Inflammation of the bladder may mean one of those four things or it may not. Cystitis is almost never a primary disease. It is usually secondary to renal inflammation or some such obstruction as that of the prostate. I do not take the diagnosis of cystitis very seriously here. It may be neoplasm, which is common in the bladder at this age and any other age. That also would fall into the list of four causes given above.

"He had no pain or other symptoms." That is a rather large statement. I rather doubt that. We shall see whether that is literal or exaggerated. I think it probably means no other *bladder* symptoms.

When sick people stop smoking they often stop before they have any other demonstrable signs of disease. It is generally an early indication that something is wrong. It shows that some one of the various possible causes of illness is present. People do not stop from principle or from advice but from taste. Again and again if we trace back histories we find that comes first. Then comes pain, loss of weight, loss of appetite or some other symptom. In a smoker probably the earliest known indication of disease is that he begins to give up his tobacco.

We do not learn much from the datum about the loss of appetite. But it is now clear they did not mean what they said when they said "no other symptoms". As I prophesied, they probably meant no other *local* symptoms. Diminution of appetite is not a symptom that helps us toward diagnosis. I do not know any disease in an old person,—infectious, degenerative, or neoplastic,—that will not give loss of appetite independent of whether there is anything wrong in the stomach. It does not mean, as you would think in a younger person, that there is something wrong in the stomach.

He had sensations of pins and needles and numbness in his fingers. What very important disease is that indicative of in elderly people? Pernicious anemia. My impression is that is not what we are dealing with here. But that is the first thing that should come to mind when sensations of pins and needles and numbness in any person past middle life are mentioned. Aside from pernicious anemia many old people have those sensations and after autopsy we cannot say what it means. We cannot prove that it has anything to do with arterial disease. It is either pernicious anemia or X in the great majority of cases.

The attacks of nausea and vomiting are more definitely referable to the stomach than the loss of appetite is. But still these attacks do not give at all a trustworthy indication of gastric disease. They might perfectly well be due to uremia. Kidney disease of the vascular type is common at this age. They might be due to "exhaustion" as we say, which means we do not know much about it. Any general infection can produce such digestive troubles.

The bearing down feeling, urgency and frequency are the most definite localizing diagnostic set of symptoms that we have. He could hardly have that combination without some local bladder lesion.

"The urine had been clear and light colored." He had not at that time, so far as the observation went, had any pus or any inflammation such as would make the urine turbid, bloody or dark colored.

If it turns out that the kidney was diseased the fact that he was nervous and jumpy might be part of the condition, and if it turned out that he had just a chronic infection it would be a part of that. We shall probably never know why he was nervous and jumpy. It is not at all a helpful symptom in this case.

The fact that he had "blind staggers" (vertigo) does not help us much. Vertigo might be due to anemia, if he had pernicious anemia, or it might be due to any of the other diseases mentioned as we have gone along. It is common in debilitating diseases of all kinds.

The frontal headache makes us think especially of some infection, perhaps of the urinary tract, or uremia.

At the end of the past history two things seem most probable, though the cases will very likely turn out to have nothing to do with either of them,—urinary infection and chronic nephritis.

The story of cystitis twenty years ago and

again seven years ago may be of some significance, showing that the trouble which he now has goes further back than the history otherwise shows. Trauma is not a common cause of cystitis. We do not know just what the trauma was.

MISS PAINTER: A horse fell on him.

DR. CABOT: I should think that a very improbable cause of cystitis, if you can picture the situation. I should say the horse falling on him gave him a shaking up and the previously existing urinary troubles began to manifest themselves more owing to the shock of this accident.

The slow loss of weight is not important. Many old people slowly lose weight and are just as healthy and happy after the loss as before. The majority of old people are rather thinner than the majority of young or middle aged people.

We come to the clinical examination not much helped by the family history and past history. If we had to make a diagnosis on the history, as they used to do when the physical examination consisted of feeling the pulse and looking at the tongue, I do not know what we should say. Hence we are looking to the physical examination and especially the laboratory reports to help us out.

NOTES ON THE PHYSICAL EXAMINATION

Foul breath and twitching suggest uremia, which I have spoken of before, but they might also be due merely to infection, which is the other main probability in the case so far.

What are we to say as to the significance of the absence of the apex impulse in this case?

A STUDENT: Does it mean myocarditis?

DR. CABOT: No. In most old people the apex beat cannot be seen or felt. The chances are that when you are seventy-five, hale and hearty, with a good heart, your apex beat will not be felt because of stiffening of the chest wall. I do not say that is the cause in this case. I am speaking merely on the basis of statistics. It does not suggest myocarditis or anything else.

"Heart sounds faint and of poor quality." That is a question of who says so. I often wish we had a standard like the hemoglobin standard to check up intensity of heart sounds. But we have not. Each man is his own standard. Unless one has known the patient before and knows that the heart sounds are weaker than they were last week or last month or last year one has not much of an observation. Of course in a man as sick as this there is a good chance that the heart sounds would be about like this.

"No murmurs." So far, so good. But that does not rule out myocarditis or more serious heart disease. What is not put down is the presence or absence of arhythmia. The presence or absence of murmurs is not important, but certain types of arhythmia are important. But if arhythmia were present they would certainly have put it down. It is an obvious thing that no interne or visiting man would omit from the record. I assume that there was no arhythmia, and that is against serious heart trouble.

The heart measurements are all perfectly "normal," but this does not mean much in a man with this type of chest. Percussion measurements are very unreliable in people of this age.

The blood pressure is the first certain pathologic fact that we have had. This patient was lying in bed. A man who has not been running up and down stairs or exercising and is not in an emotional state cannot have a systolic pressure of 210 without serious disease. If you ran up and down the stairs of this amphitheatre you would have a systolic blood pressure of 210. I used to run around the yard of this hospital and my blood pressure would go as high as that from 120 when I started. Sometimes a patient impressed by meeting you as a great expert will have a blood pressure markedly abnormal, but as soon as he gets over the first transports of enthusiasm will have a normal blood pressure. We may assume that in this case the systolic pressure was about 210, as they made other measurements which did not vary very much. The diastolic here is high to high normal. 90 is normal; 100 is the dividing line between normal and abnormal. There is a wide difference between the systolic and the diastolic pressure. That is very common in old people and is generally put down to arteriosclerosis. I have no better guess. In aortic regurgitation there is a much bigger pulse pressure than this. The sound by which we measure the diastolic has been known to go all the way down to zero, and often as low as 40 or 30. We see a moderately increased blood pressure like this in exophthalmic goiter. In that case there is perverted secretion of the thyroid, the system is keyed up and the heart along with it. The heart is then what I call a "demonstrative heart". It is making a big noise and a big show and manifesting itself in a big pulse pressure. Hyperthyroidism is almost impossible in a man of seventy-five. That points to the fact that, as the age suggests anyway, he has degenerated arteries.

After the electrocardiogram we are wiser as to one thing. What abnormality does it show? Probably a large left ventricle. Nothing was found on percussion or palpation to show that. Presumably x-ray, if there is one, will back it up.

"The lungs and abdomen are normal." That shows it cannot be a congestive heart case. If he were dying of heart disease of the congestive type he certainly would show something in the lungs. Heart disease of any other type could show either pain or arhythmia, which he has not.

The hyperactive knee jerks confirm what has already been recorded, that the nervous system is on edge from some cause, toxemia we generally say.

Going over his body they really found nothing

there except high blood pressure and left axis deviation. Foul breath, twitching and so on are suggestive, but not in any way positive.

They catheterized him and found a residual of 1.5 ounces of urine. Perhaps half our best citizens are going around with as much residual as that. It is astonishing if that is true that he has had so many bladder symptoms. There was pus in the last few cubic centimeters of urine. That is of course important, meaning urinary infection.

An output of 35 to 43 ounces would be normal in the summer.

There is a space of eight degrees between the highest and the lowest specific gravity; not a fixed gravity. It is most important to take the urine in the morning, before meals and after meals. Then it ought to show a wide variation according to the liquid intake and the concentration during the night. When there is a difference of only four or five degrees we say it is a fixed specific gravity. That is hyposthenuria, inability of the kidney to concentrate. This is not a case of fixed gravity.

We know he has pus in the urine, and if there is pus there is albumin, no matter whether anything is wrong with the kidney or not. There are rather few cases in which albumin does help us. We think less and less of albuminuria as a diagnostic datum.

10 to 80 leukocytes per high power field is of course abnormal. The red cells are evidence of an inflammatory process going on in the urinary tract.

The renal function is less than 5 per cent. That means serious impairment of the kidney function. 30 per cent, 20 per cent, 15 per cent, —all those may be found with a normal kidney. But a figure below 10 is significant.

In the blood there is not much of significance. The polynuclear count is low, and when the polynuclear count is low it does not make much difference what the total count is. When you have only a minute to size up a person's blood, size up the smear. If the proportion of polynuclear leukocytes is normal in the smear it does not make much difference what the count is.

The red count is very important. We never have an anemia as grave as that at his age without some organic cause.

We now come to the blood chemistry. What about the non-protein nitrogen? Very high; not the highest I have seen, but at least twice or three times normal. It goes up to 100 and 107, both of which are high and point distinctly to retention products, insufficient renal excretion.

The creatinin is double to triple what it ought to be.

He was here two weeks. Up to death that temperature suggested, as did other facts, sepsis or other infectious disease.

What do the medium consonating râles mean?

STUDENTS: Bronchopneumonia.

DR. CABOT: That is a good guess. They might be due to passive congestion, but they were not there when he came in. "Consonating" quality means solid tissue around the tube in which they explode.

So far the diagnosis I should say would be urinary sepsis, bronchopneumonia, with of course some other damage to the kidney. We cannot tell however whether that damage was due to sepsis itself, infectious nephritis, or to some degenerative chronic vascular type of nephritis, or to both, which is perhaps more likely than either.

That sodium bicarbonate was given I suppose because they thought his CO_2 combining power was high, though the figure is near the normal.

The chill was probably due to his urinary infection.

The change of the chest râles has no significance so far as I know.

They made the diagnosis of chest fluid presumably by dullness on percussion, diminished breathing, diminished fremitus and voice sounds. They sometimes sum up these signs and give the conclusions rather than the basis of the conclusions because they want to shorten the record. I wish to call your attention to the fact that we make many wrong diagnoses of fluid at the base of the right lung. In a great many cases there is really nothing there but a high congested liver. Percussing over the liver behind, one thinks he is percussing over the chest because the diaphragm and lung are pushed up by the liver. In this case there is not much evidence of dropsy, and liver congestion is not I think likely. It is probable that it is correct to say that there is fluid there.

A STUDENT: Would the length of time he had been in bed have anything to do with the lung symptoms?

DR. CABOT: That would be just as likely to make his lungs better as to make them worse. Sometimes a patient develops edema because he is not in bed.

DIFFERENTIAL DIAGNOSIS

What we are able to say on the basis of these facts is quite definite. We may turn out wholly wrong, but there are very few things which ought to be seriously considered so far as the leads are given. What do we know surely? He has hypertension. He has a big left ventricle. There is marked retention of products which ought to be excreted by the kidney. There are blood and pus in the urine. He has had bladder symptoms. His heart on the whole is doing well and was not the cause of his death. He had râles in his chest which suggested but did not at all prove bronchopneumonia. We know he had an irregular, sometimes a high fever which must be explained either as bronchopneumonia or as urinary sepsis or something else, like pericarditis or colitis, of which we have no signs but which may perfectly well be here

without signs. We should put down the diagnosis something in this way:

1. Arteriosclerosis presumably, because of his age and blood pressure, the condition of his retinal and peripheral arteries. It is a pretty good guess at seventy-five. I think the pathologist likes to put it at the top of his list of findings.

2. Hypertrophy of the left ventricle with normal valves and no evidence so far of myocarditis. But it may perfectly well be there in the absence of all other evidence, because myocarditis so often fools us.

3. In the lungs passive congestion because of that fluid and the râles; probably also bronchopneumonia, because of the difficulties in breathing and because bronchopneumonia is so common at the end of life as well as at the beginning of life. Without x-ray we cannot prove its presence. The man was too sick to take to the x-ray room, and only a limited number of portable films can be taken because of the time and expense.

4. The most discussable question, and the one of which I feel most uncertain, is the condition of his kidneys. He has pus and blood in his kidneys. That may be very local and very unimportant. We cannot tell whether it is local and unimportant or widespread and important. It may extend up into the kidney. The symptoms are quite out of proportion to the findings. The findings are not much, but on the other hand are enough for serious kidney infection. The main question is whether or not he has nephritis. We can safely say yes, some kind of nephritis. If it is not suppurative or infectious nephritis in connection with the general urinary infection it is probably the vascular type. It may well be both. It may be that he long has had vascular nephritis on top of which the infectious nephritis was grafted in the latter weeks of his life. I believe infectious nephritis would be capable in itself without vascular nephritis of raising the non-protein nitrogen and creatinin as much as this. I have seen it before. On the whole I should say the best probability is the vascular type of nephritis with or without the infectious type also.

A STUDENT: Would you say he had uremia?

DR. CABOT: Yes. That is a thing we cannot mistake on postmortem. It is a clinical syndrome. When a person in the presence of any urinary symptoms has twitching, jumping, foul breath, high retention products and what I should have mentioned previously, marked secondary anemia, he has uremia. Urinary sepsis cannot account for so much secondary anemia. A patient can have urinary sepsis for months or years without any anemia at all. It does not pull people down. It does not hit the blood. The anemia cannot be accounted for by urinary sepsis, by arteriosclerosis, by bronchopneumonia, by hypertrophied left ventricle or by anything else except nephritis. That makes me sharpen up all that I said and say he certainly had vascular nephritis. We shall be very indignant if Dr. Mallory says he has not vascular nephritis.

A STUDENT: What about this stomach guaiac?

DR. CABOT: He has had loss of appetite, some nausea, some vomiting. Why should he not have cancer of the stomach? We are dealing with an organ that has only two diseases, cancer and ulcer. We certainly have no evidence of ulcer of the stomach. But one can have cancer with those symptoms and one can have it without any symptoms whatever. It has been found again and again post mortem when there has been less than there is here to suggest it. What is against it? He has had only a short period of stomach symptoms and has vomited extraordinarily little. There was only one positive guaiac. He has had very little pain. They have not said the skin was particularly dry, as you are certain to get in obstructive lesions of the pylorus where cancers most often occur. Water does not get through the pylorus, and so is not absorbed, and so the whole body dries up. Nothing was said about that. He is said to be "shriveled". I do not think that means much. He is not apparently dehydrated, as he would be if he had cancer of the stomach. He may possibly have cancer of the stomach, but for the reasons I have given I do not think he has. I do not think he has an ulcer or any other disease that I can name in the gastrointestinal tract. The positive guaiac is not sufficient evidence. One may have that with a perfectly normal stomach and intestine. Perhaps he had just eaten meat or taken meat juice or had piles, or proper precautions had not been taken.

A STUDENT: Is the frequency of urination significant?

DR. CABOT: It suggests some trouble in the bladder, and we have every reason to suppose that he had some trouble in the bladder. You get it with any cystitis or any prostatic disease. I suppose he has obstructing prostatic disease. It cannot have been much. There was very little residual.

A STUDENT: No casts were found.

DR. CABOT: Osler called one of his most noted papers "The advantages of albumin and casts in the urine of a man over fifty years of age." They are advantageous because they do not mean nephritis, yet they lead him to take in sail. A great many cases of proved nephritis post mortem never have any casts.

A STUDENT: Can there be pus cells in the urine from vascular nephritis alone?

DR. CABOT: Yes. But there are plenty of reasons for pus low down in the tract you see.

A STUDENT: Can one have nocturia from nephritis alone?

DR. CABOT: Yes. We have evidence here of cystitis from the pus and blood, and it seems

just as natural to put it down as due to cystitis as to any other cause. But in the end I believe he certainly has vascular nephritis, and that also would give nocturia.

A STUDENT: Why did they give sodium bicarbonate with such small change in CO_2?

DR. CABOT: I suppose they must have thought it was enough to give him some acidosis, but it does seem queer.

A STUDENT: Is hemorrhage of the right disc of any significance in possible nephritis?

DR. CABOT: The characteristic thing is old hemorrhage and not fresh hemorrhage. It is queer that he had no old hemorrhage if he has had vascular nephritis as long as I believe he has had it. But I should say that any hemorrhage was a straw pointing in the same direction.

A STUDENT: Have the diphtheria and typhoid fever any bearing on this?

DR. CABOT: No. If we live to be seventy-five after diphtheria and typhoid fever in boyhood we cannot say they have done us much harm.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Arteriosclerotic and hypertensive heart disease.
Chronic nephritis.
Chronic cystitis.
Benign hypertrophy of the prostate.
Uremia.

DR. RICHARD C. CABOT'S DIAGNOSES

Arteriosclerosis.
Vascular nephritis with or without infectious nephritis.
Cystitis from prostatic obstruction.
Hypertrophy of the left ventricle.
Passive congestion of the lungs.
Probably bronchopneumonia.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Vascular nephritis.
Arterio and arteriolar sclerosis.

2. *Secondary or terminal lesions.*

Hypertrophy of the heart.
Chronic passive congestion.
Bronchopneumonia.
Acute hemorrhagic cystitis.
Acute colitis.

3. *Historical landmarks.*

Cholelithiasis.
Hyalinization of islands of panereas.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This case did show a very marked degree of vascular nephritis, which is the primary diagnosis. As is usual, the arterial disease was more generalized than that. There was extensive arteriosclerosis of both the large vessels and the arterioles throughout the body. As you would expect in that connection, the heart was considerably hypertrophied.

There was fluid in both sides of the chest, half a liter on each side, some edema and congestion at the bases of both lungs and a trace of terminal bronchopneumonia.

There are a few secondary features which are common in a death from uremia which we always look for, such as pericarditis. That was not found. Another almost equally common finding anatomically is acute inflammation of the mucous membrane of the cecum. It usually does not produce noteworthy clinical symptoms. That was present. So we have one of the two things we expect at autopsy with uremia.

The majority of cases of arteriosclerosis affecting all the small blood vessels, although they do show some degree of renal involvement, do not die of uremia. It is rather the exception when one dies of uremia. The majority of them have a long-standing hypertension and are more likely to die of heart disease or of a cerebral accident. Uremia is always a possibility, and I think it was the primary cause of death here.

One other finding was a purely incidental one. He had a good sized gall stone without any symptoms suggestive of it in the gall bladder.

He did have a localized hemorrhagic acute cystitis, but it had not ascended into the kidney at all.

DR. CABOT: How much did the heart weigh?

DR. MALLORY: 525 grams.

DR. CABOT: That is about double what it ought to be?

DR. MALLORY: I should say about 50 per cent more than normal.

A STUDENT: Was the stomach entirely negative?

DR. MALLORY: Except for a few petechial hemorrhages.

DR. CABOT: I should like to emphasize once more the anemia, the point which I almost overlooked myself, the significant thing which clinched for me the diagnosis. There are very few causes of secondary anemia, and we always have to pin it on to something when we are making the diagnosis. Chronic nephritis is one of the common few causes.

Also notice how large a heart Dr. Mallory says he had, though without any sign except the axis deviation.

CASE 16412

MARKED TOXICITY AS A PREDOMINATING SYMPTOM IN A COMPLICATION FOLLOWING MEASLES

CHILDREN'S MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. HENRY L. GEORGE*: A two year old American girl was brought to the hospital on

*Recently resident on the Children's Medical service.

March 15. The chief complaints were coughing and loss of appetite for three weeks.

Family history. The mother and one other child were living and well. The father was not living at home. The mother had had one miscarriage after the birth of the patient.

Past history. The birth was at full term and the delivery instrumental. The birth weight was six and one-half pounds. The child was essentially normal as a baby, but never big and strong. She nursed at the breast for four weeks and was then fed on condensed milk. No cod liver oil or orange juice was given. She had been on solid food for one year. She had been in a boarding home until five weeks before admission to the hospital. She walked at one year, but did not talk yet. She had chicken pox at a year and a half.

Present illness. Three weeks before entry she had a fever, cough, cold in the head, snuffles, red and swollen eyes, and a spotted rash over all the body, including the face. Two weeks before this three other children in the tenement had had a similar rash and illness. The rash went away after four days, but the productive cough and fever persisted. She had a poor appetite. There were reported no chills or sweats, whooping, diarrhea, hemoptysis or genito-urinary symptoms.

Physical examination. Temperature 105°, respirations 60, pulse 160.

The patient was a fairly well developed and nourished girl. She appeared very sick. The respirations were shallow and rapid, with dilating alae nasae. Over the forearms desquamation of the skin was apparent. The eyelids drooped, but the pupils reacted to light. Both ear drums were injected but not bulging. The anterior and posterior cervical lymph nodes were enlarged. There was decreased movement of the right lower chest. The percussion note seemed diminished over both lung bases and in the right axilla. The breath sounds tended to be bronchial in character. Fine râles were present at the bases, especially at the right. The heart was normal in size and quite rapid in rate. A high pitched murmur was heard at the apex. The abdomen was distended. The spleen was just palpable. The superficial reflexes were sluggish. There was slight stiffness of the neck and a slightly positive Kernig sign.

Course in the hospital. The child's condition was essentially unchanged for two days. She vomited everything given by mouth. Hypodermoclysis was given to prevent dehydration. On March 17 the temperature fell within four hours from 104.8° to 98.8° and remained normal for about six hours. Then it rose to 101°. The next day it was about 102°. On March 19 it was 103° to 104°. On March 20 it rose to 105°, and remained between 105° and 106° until the child died on March 22. With the fall of temperature there was also a fall in the pulse rate to 120, which again rose gradually to 200 per minute. The respiratory rate persisted between 35 and 60 per minute.

Following the drop in temperature and the subsequent rise, the child's illness seemed out of proportion to the signs in the chest. The râles had almost completely disappeared and no definite areas of consolidation could be made out. X-rays showed no areas of density. The child appeared very toxic. There were dark circles about the somewhat sunken eyes. Vomiting continued when anything was given by mouth. Some twitching of the facial muscles and right arm became evident. Lumbar puncture was done on two occasions and clear fluid obtained with an essentially normal cell count. Paracentesis of both ear drums was performed and pus obtained.

The child gradually went into a state of semicoma. Râles appeared in the chest. Nothing was retained by mouth and clyses were necessary. Lavage of the stomach yielded brownish fluid. The child died on March 22.

Laboratory findings. Urine: March 15 clear, acid, no albumin, sugar, or pus; March 21 slightly cloudy, a trace of albumin, no sugar, a few leukocytes, red blood cells and granular casts. Blood: March 16, red cells 5,600,000, platelets normal in number, leukocytes 5,500, polynuclears 56, lymphocytes 44; March 18 leukocytes 21,300, polynuclears 58, lymphocytes 39, large mononuclears 3. Tuberculin test negative. Wassermann negative in blood and spinal fluid. Lumbar punctures: March 17, pressure 160 millimeters. Normal rise after jugular compression. Clear colorless fluid, 12 cells per cubic millimeter, all lymphocytes. Pandy test faintly positive. Culture showed no growth. March 20, pressure 140. Clear. 16 cells. Pandy test negative.

Clinical Discussion

Dr. Harold L. Higgins: This child had measles three weeks previously. Apparently we were dealing with a complication of measles. The measles lowered the child's resistance and she had apparently picked up some secondary infection. This infection seemed to be a pneumonia. On the first two days the child was in the hospital her temperature fell to normal. It looked as if she were having a crisis, and we felt quite certain she had pneumonia.

Following this drop of temperature there was a rise. The signs in the lungs had disappeared. The child was very ill, quite out of proportion to the signs of pneumonia. She had the appearance of a child with dysentery rather than of one with pneumonia. She was quite toxic, was vomiting, and had dark circles under her eyes. That is the appearance of an abdominal rather than of a respiratory condition.

For explanation of these symptoms we naturally considered typhoid fever. The leukocyte

count was 5500; but measles leads to a low leukocyte count, and complications of measles frequently occur without the leukocyte count going up. Two days later the leukocyte count was higher. The child was having no diarrhea, as is common in dysentery. She had otitis media, but we were inclined to feel that it was not severe enough to explain the severity of the illness. Tuberculin tests were negative. The fact that the tuberculin test was negative does not necessarily rule out miliary tuberculosis, although the X-ray seems to eliminate that diagnosis pretty clearly. Clinically I should say she had a pneumonia which was caused by a microörganism which produced more toxic than it did respiratory symptoms.

CLINICAL DIAGNOSIS

Pneumonia following measles.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Paratyphoid B fever.

2. *Secondary or terminal lesions.*

Bronchopneumonia.
Toxic necrosis of lymphoid germinal centers.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This case proved to be rather a surprise to us at autopsy. The obvious gross findings were pneumonia and otitis media. The intestines in gross did not show very much. They are mentioned in the protocol as negative. The mesenteric lymph nodes were considerably larger, pinker and more congested than normal. On account of the suggestion Dr. Higgins raised in the course of the discussion that it might be dysentery, we made careful studies of the bacteriology of the intestines. We did not find dysentery bacilli, but paratyphoid B organisms. Sections from the intestine and also from the appendix show in the centers of the lymph follicles large accumulations of so-called endothelial leukocytes. The histologic picture varied from that of ordinary typhoid in that there was none of the characteristic phagocytosis of red cells. On the other hand there were large numbers of endothelial leukocytes, and their appearance in focal collections does resemble typhoid to a certain extent. I have seen few autopsies on paratyphoid cases and I do not know how closely the pathologic histology correlates to that of true typhoid.

The lungs showed an extensive bronchopneumonia with the marked atelectasis so common in children. The bronchi were all filled with exudate. There is nothing out of the ordinary about that.

DR. HIGGINS: A blood culture was taken at the autopsy and paratyphoid bacilli were found. Agglutination tests were also made and were negative for typhoid and paratyphoid A and B. I assume from that that the typhoid infection was not of very long standing.

DR. MALLORY: Of course paratyphoid B organisms are very unreliable in their agglutination reactions compared to true typhoid and paratyphoid A. It really is not one but a group of closely related organisms, and one cannot count on getting a response in Widal reactions with the regularity one can in genuine typhoid.

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VAGARIES OF MEDICAL ETHICS

FOLLOWING closely on an editorial concerning fee-splitting, published by the *Boston Herald* and commented on in this column, comes one in the *Minneapolis Journal* of September 5 on the vagaries of medical ethics. Both indicate that the daily press, if not the general public, is watching with interest the problems which confront our profession, particularly as they bear on the welfare of the public. If the press is watching us, it will not be long before the public takes an interest, for it is the public which is chiefly concerned with our conduct.

The *Minneapolis Journal* takes especial notice, at the moment, of that "most cherished tenet of the code of medical ethics which forbids advertising". The technical enforcement of the rule by medical societies, according to the Minnesota journal, has led them into some strange inconsistencies, and it quotes the well-known instance of the Chicago Medical Society which proceeded against two of its most distinguished members, one a former President of the Society, who had associated themselves with public clinics for the benefit of families of moderate means. One was expelled from the Society because his clinic used newspaper advertising; the charges against the other, whose clinic used the less effective method of distributing a printed circular, failed.

The editorial of the *Minneapolis Journal* implies, with justice, that we are suckled in a creed outworn when it closes with the following frank indictment of our methods:

"Why does the medical profession with medieval blindness deprive itself of one of the greatest and most efficient of modern agencies? Why does it not apply to advertising the same scientific spirit of inquiry that animates it in other things, instead of enshrouding itself in ancient prejudices? Why does it not compete masterfully with quackery by efficient use of the very tool that quackery has so misused?

"Meanwhile, the public suffers through ignorance of what the profession has to offer for the alleviation and cure of physical ills. Meanwhile, the public falls for patent medicines and charlatan practices. Meanwhile, the public is paying the bill for the obstinacy of the profession in sticking to its outdated and constricting code."

The times are changing, but least of all of the professions is ours changing with them. A few may remember the prophetic statement made recently by a representative of one of the great philanthropic foundations, that the public deserves and will have efficient and economical medical service. If the profession voluntarily will meet the changing times, so much the better; if not, the solution of the problem will be taken out of its hands. The statement was strong, but it was not a threat; it was a prediction which many of us will see realized.

To return to the question of advertising; the individual physician of course cannot advertise, nor can the clinic organized on the basis of a paying private practice. The axe to grind is too obvious and there is not sufficient responsibility for the accuracy of claims made. Philanthropic clinics, however, organized under proper auspices for the public welfare should advertise. There is no valid reason, to our mind, why properly constituted medical societies should not advertise, if you will call it that, in an educational manner; in fact, there is every reason why they should, for fire must be fought with fire, and if we have sound wares as opposed to unsound ones, in all conscience let us not be ashamed to present them.

The day of mystery in medicine is past. We no longer dress the part. The Van Dyke beard, the silk hat and the frock coat are now matters of individual choice and not of practical necessity. We less often write our prescriptions in bastard Latin. Why should we not stifle the professional jealousies of which we have so often been accused, and still further debunk ourselves?

IMPROPER ADVERTISING

We append an excerpt from the bulletin of the National Better Business Bureau Inc., which shows that improper advertising has aroused the resentment of the laity:

"The audacity of the American Tobacco Company in using advertising for its product Lucky Strike Cigarettes based on an untenable health appeal has proved profitable, but if it is safe to accept this advertising campaign as a criterion of the latitude advertising of the future will take, it is also safe to disregard consumer confidence in advertising as an entirely unnecessary element for advertising success.

Lucky Strike advertising in effect is a prescription in which the doctor, who in this instance is the American Tobacco Company, prescribes cigarettes for public health.

Lucky Strike advertising has frequently been criticized by competent authorities acting in the public interest but criticism of the American Tobacco Company seems to fall on deaf ears. Its objective seems to be to earn immediate profits even though the means used to earn them are in conflict with fair dealing. Its record of unfair dealing is quite convincing."

Medical publications have been solicited for space in which to set forth the allurements of tobacco but we are pleased to note that most of the journals would not respond to these proposals. Most publications dealing with professional matter need revenue but those which sold space to encourage the use of tobacco have lost a certain degree of approval. We do not feel that there is any occasion to discuss the good or bad effects of tobacco in connection with this publicity.

The profession has adequate testimony upon which anyone may decide for himself what his personal attitude should be, but there can be no room for differences of opinion about the ethics of the American Tobacco Company as set forth in the advertisements.

As a matter of protest the medical profession might well pattern its demonstration in some degree like that of the famous Boston Tea Party.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Blotner, Harry. M.D. Tufts College Medical School 1924. Junior Associate in Medicine at Peter Bent Brigham Hospital. Assistant in Medicine at Harvard Medical School. His subject is: "Coronary Disease in Diabetes Mellitus." Page 709. Address: 23 Bay State Road, Boston, Mass.

Frankel, Lee K. B.S., Ph.D. Doctor of Hebrew Law, Hebrew Union College 1928. Second Vice-President, Metropolitan Life Insurance Co. Member of Advisory Council of National Organization for Public Health Nursing since 1921. Member of President's Committee to Organize White House Conference on Child Health and Protection. Commissioner of State Board of Social Welfare. His subject is: "The Future of Medical Practice." Page 713. Address: 1 Madison Avenue, New York, N. Y.

Swan, Channing S. A.B., M.D. Harvard 1923. Assistant Urologist, Massachusetts General Hospital. Visiting Surgeon, Long Island Hospital, Boston Harbor, Mass. His subject is: "One-Stage vs. Two-Stage Suprapubic Prostatectomy for Benign Prostatic Hypertrophy." Page 716. Address: 264 Beacon Street, Boston, Mass.

Whitaker, Lester R. M.D. Harvard 1923. Second Assistant Visiting Surgeon, Massachusetts Memorial Hospitals. Assistant in Surgery and Instructor in Anatomy, Boston University School of Medicine. His subject is: "Surgical Management of Gallbladder Disease." Page 718. Address: 416 Marlborough Street, Boston, Mass.

Daland, Ernest M. A.B., M.D. Harvard 1918. F.A.C.S. Chief of Staff, Pondville Hospital. Surgeon, Huntington Hospital. Chief of Surgical Outpatient Department, Massachusetts General Hospital. Surgeon to Tumor Clinic, Beth Israel Hospital. His subject is: "Interscapulo-Thoracic Amputation." Page 722. Address: 483 Beacon Street, Boston, Mass.

Barnes, Frederick R. M.D. University of Pennsylvania 1913. Physician to the Truesdale Hospital, Fall River, Mass. His subject is: "A Case of Suppurative Transverse Myelitis." Page 725. Address: 157 Rock Street, Fall River, Mass.

Murray, Halstead G. M.D. Queen's University Faculty of Medicine 1915. Assistant in Industrial Medicine, Harvard School of Public Health. Medical Director, Dennison Manufacturing Company, Framingham, Mass. His subject is: "Prevention of Colds by Vaccine Therapy." Page 727. Address: Dennison Manufacturing Company, Framingham, Mass.

Leavitt, Peirce H. B.S., M.D. Harvard 1914. F.A.C.S. Surgeon, Goddard Hospital, Brockton. His subject is: "Fascial Strips in Patella Fractures." Page 728. Address: 129 W. Elm Street, Brockton, Mass.

Bearse, Carl. M.D. Tufts College Medical School 1915, and Army Medical School, Washington, D. C. 1918. Assistant Visiting Surgeon to Beth Israel Hospital. Consulting Surgeon to Whidden Memorial Hospital, Everett, Mass. His subject is: "Separation of Nates by Adhesive Plaster During Operations for Pilo-Nidal Cyst

or Sinus." Page 729. Address: 483 Beacon Street, Boston, Mass.

BERRY, GORDON. A.B., M.D. University of Michigan Medical School 1906. Instructor in Laryngology, Harvard Medical School, Post Graduate Department. Address: 36 Pleasant Street, Worcester, Mass. Associated with him is:

SCHALL, LEROY A. M.D. Jefferson Medical College of Philadelphia, 1917. F.A.C.S. Instructor in Laryngology, Harvard. Associate Surgeon, Massachusetts Eye and Ear Infirmary and Massachusetts General Hospital. Consulting Otolaryngologist, U. S. Marine Hospital No. 2. Visiting Surgeon, New England Peabody Home for Crippled Children. Assistant Otolaryngologist, Newton Hospital and Robert B. Brigham Hospital. Address: 270 Commonwealth Avenue, Boston, Mass. Their subject is: "Progress in Laryngology." Page 730.

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SIR BENJAMIN BRODIE

1783-1862

To American surgeons the subject of this biographical sketch is probably best known because of his description of a type of osteomyelitis bearing his name. It is perhaps less well known that he was the first to perform a subcutaneous operation for the relief of varicose veins. These two original contributions to surgical art however were by far the least of those he made. Few are the examples that might be found that would so well illustrate the influence of a liberal education upon the future of a medical practitioner as does the life of Sir Benjamin Brodie.

His father was the rector of the parish of Winterslow in Wiltshire, a graduate of Oxford where he had devoted himself to the classics and English literature. His mother was the daughter of a Salisbury lawyer. Benjamin was the fourth of a family of six children. His father felt that the expense of sending so many to the private schools was prohibitive on a rector's living so he devoted a part of his own time to their education and in Sir Benjamin's autobiography he says that "the success of much of my worldly career is, I am convinced, to be attributed to this discipline of my early years". He recognized the advantages which in many ways would have been derived from school associations but he thought these were discounted by the advantages of his father's personal direction. Seven to eight hours a day was the time usually devoted to study during this period and vacations were few and far between.

In 1801 the subject of this sketch was sent up to London to begin his medical studies, without however the advantage of a university degree. He attended Mr. Abernethy's lectures on anatomy and received such inspiration from his association with him that he then and there determined that the surgical side of the profession was where his interest lay. An early acquaintance with Mr. Lawrence, a prominent surgeon, had much to do with Brodie's success and they remained fast friends throughout Brodie's life. In 1802 he further pursued his anatomical studies under the guidance of Mr. Wilson at the Hunterian Laboratories in Great Windmill street. He also took lectures in chemistry during his first winter in London and, during the second winter attached himself to an apothecary in order to learn the art of prescription writing.

In 1803 he entered St. George's Hospital as a pupil under Sir Everard Home, probably the most prominent surgeon in the west of London at that time. Through the resignation of Home's assistant, Nicholson, Brodie obtained the opportunity to become Home's private assistant at his operations and in his researches in comparative anatomy. This was very much to Brodie's liking and he accepted the offer. He also received a promotion at the Hunterian School whereby he became associated with Mr. Wilson in giving the lectures in anatomy and surgery and this he continued to do until 1812. In 1808 he was appointed as Assistant Surgeon to St. George's Hospital in which capacity he continued to serve for fourteen years. He entered private practice in 1809. His cultural training had thrown him with maturer minds which brought him opportunities to join select societies such as the Academical Society and the Society for the Promotion of Medical and Chirurgical Knowledge, the latter founded by John Hunter and limited in its membership to twelve. It was at this period that he interested himself in physiological research and a paper which he wrote for one of these societies won for him an election to the Royal Society. This was in 1810-1811. The paper was published in the Transactions and was later elaborated as a Croonian lecture and, as a recognition of his ability, the Royal Society awarded him its highest honor, the Copley Medal. This was when he was twenty-eight years of age. All the years of study and hospital service which were preparing him for private practice, furnished him the opportunity for reflection upon the observations he had made and the notes he had taken, and in his autobiography he avails himself of the opportunity two or three times to comment upon the value of this method of medical education in contrast to the crowded curriculum of the ordinary medical student, enrolled in a standard school. Another great advantage that he enjoyed was the contact with eminent men in all walks of life with whom he was thrown into intimate association through co-membership in various scientific societies. His health suffered at this time from the constancy of his application, as he had allowed himself no vacation for

about ten years. Interest in a case of spontaneous dislocation of the hip led to his making some special studies upon joint diseases and in 1818 he published his first treatise on diseases of the joints. This had a very gratifying reception, was translated into several foreign languages and went through a number of editions at home. In 1816 he married and during this same year he was appointed as Professor of Comparative Anatomy and Physiology to the Royal College of Surgeons where he delivered four courses of lectures. In 1822 he received an appointment as full surgeon to St. George's Hospital. When William IV became king, Brodie, in 1832, was made sergeant-surgeon. He was President of the Royal Society from 1858 until he resigned, on account of failing eyesight, in 1861. He was President of the Royal College of Surgeons in 1844 and first president of the General Medical Council in 1858. He held membership (honorary) in many scientific societies outside Great Britain and was honored by the University of Oxford with a D.C.L. His death occurred at Broome Park, Surrey in his eightieth year, on Oct. 21, 1862. His devotion to his profession was unremitting and was as broad as his liberal culture would naturally have induced him to make it. Though lacking the formality of a university preparation his own training proved far better. It was based on the humanities which fitted him to rely upon his own judgments and his professional life was entered through the portals of anatomy and physiology, not the narrow entrances of the modern school where the subjects are taught as stepping stones to clinical instruction, but where they become the language-medium for thought in all the problems of practice. He was of a deeply religious nature and found time in a busy life for the observance of those duties for which adherence to a faith calls. His practice was extensive and lucrative, but in all his professional responsibilities he was actuated by a desire to further preventive medicine. A better model for a young man entering the practice of medicine would be hard to find.

MISCELLANY

MORTALITY REPORTS

Telegraphic returns from 77 cities with a total population of thirty-four million for the week ending September 27, indicate a mortality rate of 10.5 as against a rate of 11.1 for the corresponding week of last year. The highest rate (19.4) appears for Wilmington, Del., and the lowest (3.2) for New Haven, Conn. The highest infant mortality rate (18.5) appears for Fall River, Mass., and the lowest for Lynn, Mass., New Haven, Conn., Salt Lake City, Utah, Tacoma, Wash., and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 77 cities is 12.1 for the thirty-nine weeks of 1930, as against a rate of 12.9 for the corresponding weeks of 1929.

CORRESPONDENCE

THEORY THE GERM OF PROGRESS

To the Editor of The *New England Journal of Medicine*,

Sir:—

The editor of a medical journal once declined to publish a letter of mine because, he said, it was theoretical rather than practical.

But while it may, or may not, be advisable for an editor to refuse to publish a piece that he thinks sets forth a false theory, it is certainly wrong for an editor to refuse to publish a piece merely because it is theoretical.

What is theory? Theory is the lantern that shows us what path we are going to take. False theories have led the world astray for hundreds of years. True theories have led the world in paths of peace, prosperity, and happiness. No doctor can administer a drug, no surgeon can use a scalpel unless some theory has preceded to show them why and how to do these things. "Visionaries", dreamers, idealists, and theorists are higher types of men than practitioners, practical men, and men of action, for the theorist plans what the practitioner merely executes. An architect is a higher type of man than a contractor. Men like Hippocrates, Galen, and Paracelsus are higher types than ordinary medical practitioners, because they founded schools of medicine to which the medical fraternity adhered.

There is no science, art, or profession that should welcome theory more than the medical profession should welcome it, for no science or art has changed more throughout the ages than medicine has changed. It is a far cry from such remedies as powdered bat's wing, the liver of a wolf, and the flesh of a serpent, as recounted by Pliny in his "Natural History," to the theory and practise of modern schools of medicine. And who knows what medical theory and practise will be five hundred years from now? Whatever they will be then, they will certainly be different from what they are now.

Theory? We need all the theory we can get, provided there be a modicum of intelligence and genuine thought in it. Theory is the germ of progress.

Yours very truly,

CHARLES HOOPER.

Coeur d'Alene, Idaho, September 25, 1930.

CORPORATE MEDICINE AND THE LAW RELATING THERETO

September 29, 1930.

New England Journal of Medicine,
165 Newbury Street,
Boston, Massachusetts.

Mr. Editor:

Twice within the year, I have used your *Journal* to call attention to the fact that Corporate Medicine was a violation of the medical practice act. In both instances I have tried to make it clear, that the infraction of the law involved not only the institutions themselves, but also their associated staffs. Pending a judicial decision in the matter, I have confined

myself to a statement of fact, and have not pressed the point further.

May I now, through your columns, direct the attention of the State Board of Registration in Medicine, and all other law-enforcing agencies, to a recent action of the Supreme Judicial Court of the United States, and therefore the Court of last resort, which seems to cover all phases of corporate professional activities?

It seems to make the path of duty clear.

The following quotation is taken from the *Boston Evening Transcript* of Saturday, September 27, 1930, which paper in turn credits the statement to the Legal Research Service.

"COLORADO BAN ON CORPORATION DENTISTRY

"Among the health measures considered was the law of the State of Colorado regulating the practice of dentistry. A corporation is running a dental parlor employing qualified dentists. The attorney general of the State instituted proceedings to oust the corporation because it had not taken an examination in dental surgery and had not secured a license, which, as a corporation, it could not do. The corporation petitioned the Supreme Court, maintaining that it was deprived of property without due process of law, and that the statute was unconstitutional because there was no reasonable connection between the ownership of a dental parlor and health and safety, in view of the other laws of the State requiring that those who actually do the dental work shall pass an examination and shall obtain the required license. The petition was denied."

Yours sincerely,

JOHN J. HURLEY, M.D.

466 Commonwealth Avenue.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.
September 26, 1930.

Managing Editor,
The *New England Journal of Medicine:*

In addition to the articles enumerated in our letter of August 29 the following have been accepted:

Eli Lilly & Co.
Amytal
Pulvules Sodium Amytal, 3 grains
Old Tuberculin, Human Strain, Concentrated, 2 vial packages

McKesson & Robbins, Inc.
McKesson's Vitamin Concentrate of Cod Liver Oil

E. S. Miller Laboratories, Inc.
Ampoule Sterile Solution Dextrose, U.S.P., 5 gm., 10 cc.
Ampoule Sterile Solution Dextrose, U.S.P., 10 gm., 20 cc.

Plant Products Co.
Plant's Magnesia Wafers

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

H. K. Mulford Co.
Pollen Extracts Diagnostic—Mulford

Yours truly,

W. A. PUCKNER, *Secretary,*
Council on Pharmacy and Chemistry.

RECENT DEATHS

MADSEN—DR. WILLIAM JOSEPH MADSEN of Millers Falls (Montague) died in Boston, July 17, 1930, at the age of 45.

He was a native of Trenton, N. J., a graduate of the Middlesex College of Medicine and Surgery in 1920 and of the Missouri College of Medicine and Science, St. Louis, the following year. He joined the Massachusetts Medical Society in 1928 then being in Millers Falls. Dr. Madsen was of Danish ancestry. He was unmarried.

McDONALD—DR. JAMES WILLIAM MCDONALD, a practitioner of Worcester, died at the wheel of his car in the garage of the Hotel Bancroft in that city, September 26, 1930, at the age of 53. Dr. McDonald had practiced in Worcester for many years and was a member of the Staff of St. Vincent Hospital, specializing in stomach ailments. He was the son of Henry and Mary McDonald of Worcester. He attended St. John's School, Worcester Academy, Holy Cross College from which he graduated in 1898 with the degree of A.B. He was a graduate of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore in 1902 and served his internship at St. Vincent Hospital. He continued his studies at the University of Bonn, Germany, and at the Johns Hopkins University, Baltimore, Maryland. Dr. McDonald was a member of the American Medical Association, the Massachusetts Medical Society (which he joined in 1903), the Worcester County Medical Society and the Worcester Lodge of Elks. He is survived by two sons, James Philip and Joseph.

NEWS ITEM

APPOINTMENT OF DR. MARY E. GAFFNEY—Dr. Mary E. Gaffney, formerly of the State Sanatorium, Wallum Lake, R. I., has been appointed assistant physician at the Norfolk County Hospital, South Braintree, Mass.

NOTICES

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following-named open competitive examinations:

Senior Medical Technician and Medical Technician in Bacteriology

Senior Medical Technician and Medical Technician in Roentgenology

Applications for senior medical technicians and medical technicians in bacteriology or roentgenology must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than November 5, 1930.

The entrance salary for senior medical technician is $2,000 a year; and for medical technician $1,620 a year.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

REMOVALS

Dr. Abraham Myerson, Dr. Harry C. Solomon, and Dr. Maxwell E. Macdonald announce their association at 270 Commonwealth Avenue, Boston.

Dr. F. A. Mack announces his removal from 156 Huntington Avenue to 1087 Boylston Street, Boston, Suite 1, and has taken over the practice of the late Dr. W. C. Pike.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND PEDIATRIC SOCIETY

The Fall meeting of the New England Pediatric Society, as in the past, is to be a combined meeting of the Philadelphia Pediatric Society, the Pediatric Section—New York Academy of Medicine and the New England Pediatric Society, and is to be held this year in New York, October 11, 1930.

The program includes a clinical meeting at the new Babies' Hospital and inspection of the Medical Centre of Columbia University.

GERALD HOEFFEL, M.D., *Secretary.*

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The regular clinical conference of the New England Hospital for Women and Children will be held at the hospital, Dimock Street, Roxbury, on Thursday, October 16, at 8 P. M. Some cases of anaemia will be discussed by the haematologist, Dr. Muller.

ALICE H. BIGELOW, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

The first regular meeting of the Harvard Medical Society will be held in the amphitheatre of the Peter Bent Brigham Hospital at 8 o'clock on the evening of Tuesday, October 14.

Program:

Presentation of cases.

A paper, "Dermatomes in Man", by Dr. Opfrid Foerster, Professor of Neurology of the University of Breslau.

Medical students, nurses, and physicians are invited to attend the various meetings of the Harvard Medical Society.

WILLIAM P. MURPHY, M.D., *Secretary.*

MIDDLESEX SOUTH DISTRICT MEDICAL GOLF ASSOCIATION FALL TOURNAMENT

The Middlesex South District Medical Golf Association held its fall tournament on September 25 at the Oakley Country Club, Watertown.

Thirty members came and played in the eighteen-hole medal handicap tournament.

Dr. S. M. Biddle won the prize for low gross.

Drs. E. J. Kelly and W. T. O'Halloran tied for second gross.

Dr. L. T. Hopkins won the low net and Drs. J. J. Lucy and J. H. Burnett tied for second net.

Dr. Harry Friedman won the long drive prize from the tenth tee in the fairway.

Dr. W. S. Whittemore was a prize winner for the highest score.

After the tournament the players sat down to dinner in the club house. The dinner was followed by a short business meeting.

This meeting of the golf association was well attended and very much enjoyed by the men. We want to get out even more for the next tournament, which will occur in the spring. Anyone who plays golf may send in his name which will be put on the mailing list. These tournaments are enjoyable, using different clubs furnishing good exercise, good fellowship and good food. Remember, your chances of winning a prize are just as good as the next man's.

S. M. BIDDLE, *Secretary-Treasurer.*

THE NEW HAMPSHIRE SURGICAL CLUB

The New Hampshire Surgical Club held its 33rd annual meeting September 14 and 15 at the Grandliden Hotel, Lake Sunapee, N. H.

Members began to arrive on the thirteenth and proceeded to enjoy themselves with golf on the superb links belonging to the hotel, boating on the lake and the driving and walking about this beautiful place.

Monday, September 15, the meeting opened in the morning with an instructive paper on Obstetrical Problems by Delos Bristol, M.D., of Boston. This paper was thoroughly appreciated.

The business meeting opened at 1:30 P. M. and the following officers were elected:

President: Carleton Metcalf, M.D., Concord, N. H.
Vice-President: Timothy Rock, M.D., Nashua, N. H.
Secretary-Treasurer: Wendell P. Clare, M.D., Portsmouth, N. H.
Executive Committee: Arthur T. Downing, M.D., Littleton, N. H.; John Bowler, M.D., Hanover, N. H.; John F. Holmes, M.D., Manchester, N. H

Several new men applied for membership.

Afternoon Program:

Diverticula of the Stomach, by John Gile, M.D., Hanover, N. H.

Progress in Surgery of the Sympathetic System, by Jason Mixter, M.D., Boston, Mass.

Low Back Pain, by Ezra Jones, M.D., Manchester, N. H.

All these papers were interesting and brought out lively discussions with many favorable comments.

The banquet was held at the hotel that evening and, with John Gile as toastmaster, proved to be a very enjoyable affair.

Dr. Carleton R. Metcalf, the incoming president, delivered an oration on the History of Surgery in New Hampshire. This paper was especially interesting and portrayed in a memorable manner some of the old masters of the past.

Dr. Jason Mixter recounted personal memories of many notables not so long since passed.

The evening drew to a close with an entertainment by that eminent magician, Richard Davis.

While the attendance at this meeting was not large, those who made the trip felt amply repaid.

WENDELL P. CLARK, M.D.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

The next meeting will be held Thursday, October 16, at the Weston Country Club at 12 noon to be followed by a banquet. All Fellows are requested to be seated promptly as delay will interfere with the moving pictures.

Subject: Symposium on Uterine Bleeding.

Illustrated with lantern slides and moving pictures.

Speakers: Dr. A. K. Paine, Dr. F. J. Lynch, Dr. M. F. Eades, Dr. Charles F. Mongan, Dr. Frederick L. Good, Dr. Louis E. Phaneuf, Dr. Foster S. Kellogg, Dr. Samuel R. Meaker.

Golf may be played upon application to Mrs. M. C. Smith. Green fee $3.00.

ALEXANDER A. LEVI, M.D., *Secretary.*

NEW ENGLAND SURGICAL SOCIETY

The Thirteenth Annual Meeting of the New England Surgical Society was held in Boston on September 29 and 30, 1930. One hundred and eight members were present at one or another of the various interesting sessions.

On Friday there were Clinics at the Brookline Free Hospital for Women, at the Deaconess Hospital, at the Children's Hospital and at the Huntington Memorial Hospital. Following are the programs:

DEACONESS HOSPITAL

Dr. LAHEY—Room 1

8.00 Recurrent hyperthyroidism—Excision of thyroid remnants.

8.45 Primary hyperthyroidism—Right first stage subtotal hemithyroidectomy.

10.00 Cholelithiasis-cervical polyp—Cholecystectomy—Excision of polyp-spinal anaesthesia.

Dr. CLUTE—Room III

8.00 Adenomatous goitre with secondary hyperthyroidism—left second stage subtotal hemithyroidectomy.

10.00 Adenoma—left lobe of thyroid—Excision.

10.45 Adenomatous goitre—Subtotal thyroidectomy.

Dr. CATTELL—Room III

8.45 Carcinoma of left breast—Radical mastectomy.

Papers

9.15 "A Two Stage Combined Abdomino-Perineal Operation for Cancer of the Rectum." Dr. Frank H. Lahey.

9.45 "Total Gastrectomy for Cancer of the Stomach." Dr. Howard M. Clute, Dr. Robert L. Mason.

CHILDREN'S HOSPITAL

Surgical Service

11.00 Dr. W. E. Ladd—Duodenal Obstruction.

11.15 Dr. C. G. Mixter—Oesophageal Stenosis.

11.30 Dr. G. D. Cutler—Idiopathic Peritonitis.

11.45 Dr. T. H. Lanman—Ureteral Studies.

12. Dr. F. D. Ingraham—Spinal Cord Studies.

Orthopedic Service

12.15 Dr. F. R. Ober—Septic Hips and Knees.

12.30 Dr. A. H. Brewster—Stretching of Heel cord by use of the Kirschner wire and Hoke traction.

12.45 Dr. A. T. Legg and Dr. F. C. Bost—Bone Lengthening and Apparatus.

HUNTINGTON MEMORIAL HOSPITAL

Dr. Robert B. Greenough, presiding

11.10 Dr. G. A. Leland, Jr.—Some Aspects of the Treatment of Cancer of the Cervix.

11.25 Dr. G. G. Smith—Palliative Operations for Advanced Cancer of the Bladder.

11.40 Dr. C. C. Lund—The Fischer-Wasel Oxygen Treatment of Cancer. Report of Cases.

11.50 Dr. E. M. Daland—Tuberculin Treatment of Cancer. Report of Cases.

12.00 Dr. R. B. Greenough and Dr. J. C. Aub—The Lead Treatment of Cancer. (Blair-Bell.) Report of Cases.

12.15 Dr. O. O. Meyer—Experimental Work on (1) The Use of Extracts of the Adrenal Cortex in the Treatment of Cancer. (2) The Treatment of Cancer with Thymus Extract. (Kardinolysis Hanson.)

12.30 Dr. Henry Jackson, Jr.—Biological Aspects of Cancer.

Following this the members adjourned to Vanderbilt Hall, the Harvard Medical School Dormitory, for luncheon. At two o'clock the Scientific Session was held at the Harvard Medical School. Papers read at this session will appear in due order in the *New England Journal of Medicine.*

The members were entertained by Dr. Charles J. Mixter at his delightful estate at Brookline in the late afternoon. In the evening the Annual Dinner was held in the Aesculapian Room at the Harvard Club. The President, Dr. David W. Cheever, presided

and there were eighty-five present. After the close of the dinner Dr. Charles G. Mixter, on behalf of himself and his brother Dr. William J. Mixter, presented to the Society in memory of their father Dr. Samuel J. Mixter, one of the founders and the first President of the Society, a gavel made from a timber from the Ether Dome of the old Bulfinch Building at the Massachusetts General Hospital. The silver bands on the gavel are inscribed "Presented to the New England Surgical Society in memory of Samuel Jason Mixter a Founder and first President of the Society, 1916" and "Made from a timber of the Ether Dome of the Bulfinch Building, Massachusetts General Hospital, 1930. Presented by W. J. M. and C. G. M." The gavel was accepted, on behalf of the Society by the President, in well-chosen words. There were no invited speakers, but the President, Dr. Cheever, gave a delightfully interesting and intimate talk about the older dignitaries and celebrities of surgery in New England, illustrated with lantern slides. Following this the Lewis film of cell development was shown.

On Saturday morning Clinics were held at the Boston City Hospital, the Massachusetts General Hospital and the Peter Bent Brigham Hospital as follows:

BOSTON CITY HOSPITAL

Paper

9.00 Abscess of the Spleen—Dr. Walker.

Clinic

9.30 Unusual Goitre cases from the Thyroid Clinic—Dr. R. C. Cochrane.
10.00 Cases of Arthrodesis of Hip—Dr. F. J. Cotton.
10.30 A Case of Giant Cell Tumor—Dr. H. Binney.
10.40 Operation for Ununited Fracture of Humerus from Gun-Shot Wound—(By invitation) Dr. O. J. Hermann.
10.50 Cases of Femoral Embolectomy for Iliac Embolus—(By invitation) Dr. Charles C. Lund.

MASSACHUSETTS GENERAL HOSPITAL

Clinic

9.00 Cholecystectomy—Dr. Miller.
9.15 Hysterectomy—Dr. Whittemore.
9.30 Arthroplasty of hip—Dr. Smith-Petersen.
9.45 Cholecystectomy—Dr. Davis.
10.00 Pyelotomy for Renal Calculus—Dr. Barney.

Papers

10.15 Relief of Pain by Sympathectomy—Dr. Mixter.
10.30 Cancer of the Prostate without Urinary Symptoms—Dr. Barney.

PETER BENT BRIGHAM HOSPITAL

11.00 Operation for Chronic Cholecystitis and possible stone in the Common Duct—Dr. David Cheever.
Nephrotomy for Stone—Dr. W. C. Quinby.
Removal of Abdominal Tumor—Dr. F. C. Newton.
11.45 Clinical Demonstration and operation—Dr. Harvey Cushing.
12.15 Demonstration of Cases—Phlegmasia Alba Dolens—Dr. John Homans.

Luncheon was again served at Vanderbilt Hall at one o'clock. The Annual Business Meeting was held at two at which the following officers were elected:

President: Alfred M. Rowley, M.D., Hartford, Conn.
Vice-President: Thomas W. Luce, M.D., Portsmouth, N. H.
Secretary: John M. Birnie, M.D., Springfield, Mass.
Treasurer: Peer P. Johnson, M.D., Beverly, Mass.
Recorder: Walter G. Phippen, M.D., Salem, Mass.

It was announced that next year's meeting would be held at Portland, Maine.

The Society accepted a report and adopted the recommendations of the Committee on Fractures (published in full below) and voted to continue the Committee in force for another year.

FIRST ANNUAL REPORT OF THE FRACTURE COMMITTEE OF THE NEW ENGLAND SURGICAL SOCIETY

Boston, Massachusetts
September 27, 1930

In accordance with a vote of the Society at the Providence meeting last year, President David Cheever appointed Doctors Charles L. Scudder, Robert J. Graves, and Arthur W. Allen a committee of three to investigate and report on the treatment of fractures in New England.

The following questionnaire was sent to each hospital within the district:

1. Name of City or Town:
2. Name of Hospital:
3. Name of Hospital Superintendent:
4. Bed capacity of Hospital:
5. Rating of Hospital F. A. C. S.:
6. Who of the Staff are interested in fractures:
7. What fracture equipment is maintained by the Hospital:
8. Is the approved F. A. C. S. record sheet for fractures in use.

This was accomplished through the aid of the following men, who sent with the questionnaire a personal letter to a colleague associated with each hospital:

State of Maine—Dr. Edward H. Risley, Waterbury.
State of New Hampshire—Dr. Robert J. Graves, Concord.
State of Vermont—Dr. Lyman Allen, Burlington.
State of Massachusetts—Dr. Horace K. Sowles, Boston.
State of Rhode Island—Dr. Lucius C. Kingman, Providence.
State of Connecticut—Dr. George W. Hawley, Bridgeport.

We have received replies from the various states, as follows:

Maine—Questionnaires sent 28—Replied 23 = 82.1%.
New Hampshire—Questionnaires sent 19—Replied 17 = 89.5%.
Vermont—Questionnaires sent 8—Replied 7 = 87.5%.

Massachusetts—Questionnaires sent 114—Replied 74 = 64.9%.

Rhode Island—Questionnaires sent 15—Replied 10 = 66.6%.

Connecticut—Questionnaires sent 29—Replied 14 = 48.3%.

Total—Questionnaires sent 213—Replied 145 = 68.0%.

As a result of this investigation, it is apparent that there is considerable interest in the treatment of fractures, as manifested by hospital superintendents and many staff members. This is shown by the care with which the questionnaire was answered. In many instances, personal letters were received requesting further information as to how fracture treatment in their particular institution might be improved. It was found that many hospitals were well-equipped and that in some, the record sheet approved by the American College of Surgeons was in use. Further analysis showed that in some hospitals there was not adequate apparatus and that in the majority of instances no special records were kept on fractures. In most hospitals with open staffs, all practitioners took care of their own fractures. Some hospitals had consultants for fracture cases, and hospitals with Orthopedic Services usually turned fractures to that service.

Summarizing the investigation, we have:

1. A widespread interest in fracture treatment.
2. Good hospital equipment.
3. Poor and ununiform records on fractures.
4. Unchanged personnel—all doctors treat fractures. There are occasional consultants, staff interests and special services, Orthopedic Services.

We recommend that an attempt to improve the treatment of fractures in New England be made by urging the use of the approved F. A. C. S. Fracture Sheet in each hospital, and suggest that these be discussed at staff meetings once a quarter or once a year, hoping that this may stimulate further interest in the subject.

Respectfully submitted,

ARTHUR W. ALLEN,
Secretary for the Committee.

Fracture Committee of the New England Surgical Society: Dr. Charles L. Scudder, Boston; Dr. Robert J. Graves, Concord, N. H.; Dr. Arthur W. Allen, Boston, Secretary.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

March-October — International Medical Postgraduate Courses in Berlin. Complete notice appears on page 853, issue of October 24, 1929.

October 11—New England Pediatric Society. Detailed notice appears on page 752.

October 13-17—Clinical Congress of the American College of Surgeons. Complete notice appears on page 1175, issue of June 12.

October 14—Harvard Medical Society. For details see page 752.

October 16—New England Hospital for Women and Children. See page 752.

October 20-24—International Assembly of the Interstate Postgraduate Medical Association of North America. Detailed notice appears on page 291, issue of August 7.

October 20-31—Third Graduate Fortnight of the New York Academy of Medicine. Detailed notice appears on page 547, issue of September 11.

October 22, 23, and 24—The Annual Convention of the American Academy of Physical Therapy. Complete notice appears on page 498, issue of September 4.

October 27-30—The American Public Health Association. Detailed notice appears on page 659, issue of September 25.

March 23-27, 1931 — Fifteenth annual clinical session of the American College of Physicians. Detailed notice appears on page 790, issue of April 17.

July 27-31, 1931—Third International Congress of Radiology, Paris. Complete notice appears on page 295, issue of August 21.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

April 16, 1931—Taunton Woman's Club.
September 17, 1931.

Franklin District Medical Society

November, 1930-May, 1931—The meetings are held on the second Tuesdays of November, January, March and May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

October 22—Joint meeting with Middlesex North and Essex North and South at the Veterans Hospital, Bedford.
November 12—New England Sanitarium and Hospital, Stoneham.
January 14, 1931—Harvard Club of Boston.
March 11, 1931—At Reading.
May 13, 1931—At Wakefield.

Middlesex South District Medical Society

October 16—At the Weston Country Club. Detailed notice appears on page 753.

BOOK REVIEWS

Handbook of Therapeutics. By DAVID CAMPBELL, M.D. New York, William Wood and Co. 1930. Pp. 412. $4.50.

This book, by an instructor in Materia Medica and Pharmacology at the University of Edinburgh, aims to elevate the art of therapeutics into the realms of scientific accuracy on a par with diagnosis. The first quarter of the book deals with general methods of treatment: the management of the patient, the prescription, modes of administration of drugs, diet, hydrotherapy biological products and physiotherapy. These chapters are in general good, especially the one on water and climate as therapeutic agents, and that on physiotherapy. These methods of treatment are not stressed to students in this country. The classification of foods into those which are "digestible" and "indigestible" may in spots be questioned. The chapters on the treatment of the specific infectious diseases, although probably adequate, seem to the reviewer rather sketchy. The medical student can get much better ideas in regard to treatment of these diseases from their systematic study with good instructors than he could possibly get from these short reviews. However, the advice given is always sensible and certainly up-to-date; as for example in the section on the pneumothorax treatment of tuberculosis. In the therapy of the diseases of the nervous system, the important subjects of hysteria, neurasthenia, and psychasthenia are covered in one page. Surely, one page is not enough for even the one disease neurasthenia which makes up so much of both private and out-patient practice. The chapter on the heart is excellent, though marred somewhat for American readers—as in other sections—by the somewhat differently named pharmacopoeial preparations.

The author advises the good old-fashioned treatment for acute coryza: hot foot bath, rest, hot

(preferably alcoholic) drinks, sweating powders (preferably Dover's), and aspirin. American allergists will not relish the statement that the experience of most physicians in pollen immunization with pollen extract is that the treatment is "not reliable". The chapters on the gastro-intestinal diseases are distinguished by their common-sense attitude—which indeed pervades the book—and by their freedom from any taint of freakishness of treatment. The statement that sodium salicylate is a specific for acute rheumatism is certainly to be questioned. There are sensible chapters on chronic arthritis and on diabetes.

Tne book is, in general, to be commended for its simplicity and common-sense, but it cannot be entirely recommended because of its sketchiness in several important diseases, and its use of the names of certain British drugs, meaningless to readers in this country.

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1929. Volume XXI. Edited by Mrs. M. H. Mellish, Richard M. Hewitt, M.D., and Mildred A. Felker, B.S. Octavo volume of 1197 pages with 279 illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, $13.00 net.

1929 Collected Papers of The Mayo Clinic

Volume XXI of this excellent series of collected papers continues the high level of its predecessors. It is well planned and concisely presented. Credit must be given to the editors for the coherence and uniformity of the selections which they have made from the voluminous material available.

Roughly, the articles may be divided into three groups: purely investigative reports of an anatomic or physiological nature, linked with the clinical problems which suggested the study; statistical surveys of the vast material which flows through The Mayo Clinic; and more or less philosophical or general surveys of the present status of medical problems. Of these by far the most interesting and valuable are concerned with the compilation of statistics and the inferences drawn from such a large number of cases. For while one may not always agree with the methods of treatment outlined, the presentation of such information is an urgent appeal to analysis of our own ideas.

The book is valuable not only for the excellence of the individual articles, but also because, as a whole, it presents a coherent résumé of what is being done and thought in the most highly organized clinic of America.

Physical Diagnosis. By RICHARD C. CABOT, M.D., Professor of Clinical Medicine in Harvard University, formerly Chief of the West Medical Service at the Massachusetts General Hospital. Tenth Edition. Revised and Enlarged, with six plates and 279 figures in the text. Published by William Wood and Company, New York. Price $5.00 net.

One reading this book does not have to be connected with Harvard as a student or graduate to realize that it is presented by one of the best teachers of medicine in the country. The mere fact that this is the tenth edition demonstrates that many readers in the past have found the book useful.

The chief points to recommend it are its brevity, clarity and insistence on important points in diagnosis.

The illustrations appear where they are needed and materially aid the reader in understanding the subjects under discussion. The reading of this book would benefit a man who had been in practice a number of years and who wished to review physical diagnosis as well as a student who is just taking up the subject.

See page 360 for a remarkable picture of diastasis of the recti, or page 379 for a differential diagnosis of the causes of hepatic enlargement, or page 53 for the reasons why hands become deformed and then you, too, will agree with what has been said in the three preceding paragraphs.

BOOKS RECEIVED FOR REVIEW

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland. Fourteenth Edition. Published by W. B. Saunders Company. 837 Pages. Price $2.00.

Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases by H. Warren Crowe. Published by Humphrey Milford, Oxford University Press. 52 Pages. Price $.80.

Die Chirurgie by Prof. Dr. M. Kirschner and Prof. Dr. O. Nordmann. Lieferung 28. Published by Urban & Schwarzenberg.

A System of Clinical Medicine by Thomas Dixon Savill. Published by William Wood & Company. 1019 Pages. Price $10.00.

Handbook of Therapeutics by David Campbell. Published by William Wood and Co. New York and E. & S. Livingstone, Edinburgh. 411 Pages. Price $4.50.

Problems and Methods of Research in Protozoölogy. Edited by Robert Hegner and Justin Andrews. Published by The Macmillan Company. 532 Pages. Price $5.00.

The Principles and Practice of Hygiene by Dean Franklin Smiley and Adrian Gordon Gould and Elizabeth Melby. Published by The Macmillan Company. 415 Pages. Price $2.50.

Handbook of Pediatric Procedures by Francis Scott Smyth and Edith I. M. Irvine-Jones. Published by The Macmillan Company. 212 Pages. Price $2.50.

The Gold-Headed Cane by William Macmichael. Published by The Macmillan Company. 195 Pages. Price $6.50.

The Surgical Clinics of North America, August, 1930—Volume 10, Number 4, Southern Number. Published by W. B. Saunders Company. 268 Pages.

The Principles and Practice of Medicine. Originally written by The Late Sir William Osler. Eleventh Edition revised by Thomas McCrae. Published by D. Appleton and Company. 1237 Pages.

A Text-Book of Histology by Harvey Ernest Jordan. Published by D. Appleton and Company. 857 Pages.

Mental Aspects of Stammering by C. S. Bluemel. Published by The Williams and Wilkins Company. 152 Pages. Price $2.50.